

#24

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FIRST NAMED INVENTOR: **David Beach**
TITLE OF INVENTION: **Methods and Compositions for RNA Interference**
ATTORNEY DOCKET NUMBER: **GNCA-P03-007**



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SEQUENCE LISTING

<110> Hammond et al.

<120> METHODS AND COMPOSITIONS FOR RNA INTERFERENCE

<130> GNCA-P03-007

<140> 10/055,797

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<170> PatentIn version 3.1

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cta	aat	tac	tac	aag	cag	gaa	ata	ccc	gtg	caa	cca	act	acc	tca	3654
Leu	Asn	Tyr	Tyr	Lys	Gln	Glu	Ile	Pro	Val	Gln	Pro	Thr	Thr	Ser	
1205	1210	1215	1220	1225	1230	1235	1240	1245	1250	1255	1260	1265	1270	1275	1280
tat	tcc	att	cag	aat	tta	tac	agt	tac	gag	aac	cag	ccc	cag	ccc	3699
Tyr	Ser	Ile	Gln	Asn	Leu	Tyr	Ser	Tyr	Glu	Asn	Gln	Pro	Gln	Pro	
1220	1225	1230	1235	1240	1245	1250	1255	1260	1265	1270	1275	1280	1285	1290	1295
agc	gat	gaa	tgt	act	ctc	ctg	agt	aat	aaa	tac	ctt	gat	gga	aat	3744
Ser	Asp	Glu	Cys	Thr	Leu	Leu	Ser	Asn	Lys	Tyr	Leu	Asp	Gly	Asn	
1235	1240	1245	1250	1255	1260	1265	1270	1275	1280	1285	1290	1295	1300	1305	1310
gct	aac	aaa	tct	acc	tca	gat	gga	agt	cct	gtg	atg	gcc	gta	atg	3789
Ala	Asn	Lys	Ser	Thr	Ser	Asp	Gly	Ser	Pro	Val	Met	Ala	Val	Met	
1250	1255	1260	1265	1270	1275	1280	1285	1290	1295	1300	1305	1310	1315	1320	1325
cct	ggt	acg	aca	gac	act	att	caa	gtg	ctc	aag	ggc	agg	atg	gat	3834
Pro	Gly	Thr	Thr	Asp	Thr	Ile	Gln	Val	Leu	Lys	Gly	Arg	Met	Asp	
1265	1270	1275	1280	1285	1290	1295	1300	1305	1310	1315	1320	1325	1330	1335	1340
tct	gag	cag	agc	cct	tct	att	ggg	tac	tcc	tca	agg	act	ctt	ggc	3879
Ser	Glu	Gln	Ser	Pro	Ser	Ile	Gly	Tyr	Ser	Ser	Arg	Thr	Leu	Gly	
1280	1285	1290	1295	1300	1305	1310	1315	1320	1325	1330	1335	1340	1345	1350	1355
ccc	aat	cct	gga	ctt	att	ctt	cag	gct	ttg	act	ctg	tca	aac	gct	3924
Pro	Asn	Pro	Gly	Leu	Ile	Leu	Gln	Ala	Leu	Thr	Leu	Ser	Asn	Ala	
1295	1300	1305	1310	1315	1320	1325	1330	1335	1340	1345	1350	1355	1360	1365	1370
agt	gat	gga	ttt	aac	ctg	gag	cgg	ctt	gaa	atg	ctt	ggc	gac	tcc	3969
Ser	Asp	Gly	Phe	Asn	Leu	Glu	Arg	Leu	Glu	Met	Leu	Gly	Asp	Ser	
1310	1315	1320	1325	1330	1335	1340	1345	1350	1355	1360	1365	1370	1375	1380	1385
ttt	tta	aag	cat	gcc	atc	acc	aca	tat	cta	ttt	tgc	act	tac	cct	4014
Phe	Leu	Lys	His	Ala	Ile	Thr	Thr	Tyr	Leu	Phe	Cys	Thr	Tyr	Pro	
1325	1330	1335	1340	1345	1350	1355	1360	1365	1370	1375	1380	1385	1390	1395	1400
gat	gcg	cat	gag	ggc	cgc	ctt	tca	tat	atg	aga	agc	aaa	aag	gtc	4059
Asp	Ala	His	Glu	Gly	Arg	Leu	Ser	Tyr	Met	Arg	Ser	Lys	Lys	Val	
1340	1345	1350	1355	1360	1365	1370	1375	1380	1385	1390	1395	1400	1405	1410	1415
agc	aac	tgt	aat	ctg	tat	cgc	ctt	gga	aaa	aag	aag	gga	cta	ccc	4104
Ser	Asn	Cys	Asn	Leu	Tyr	Arg	Leu	Gly	Lys	Lys	Lys	Gly	Leu	Pro	
1355	1360	1365	1370	1375	1380	1385	1390	1395	1400	1405	1410	1415	1420	1425	1430
agc	cgc	atg	gtg	gtg	tca	ata	ttt	gat	ccc	cct	gtg	aat	tgg	ctt	4149
Ser	Arg	Met	Val	Val	Ser	Ile	Phe	Asp	Pro	Pro	Val	Asn	Trp	Leu	
1370	1375	1380	1385	1390	1395	1400	1405	1410	1415	1420	1425	1430	1435	1440	1445
cct	cct	ggt	tat	gta	gta	aat	caa	gac	aaa	agc	aac	aca	gat	aaa	4194
Pro	Pro	Gly	Tyr	Val	Val	Asn	Gln	Asp	Lys	Ser	Asn	Thr	Asp	Lys	
1385	1390	1395	1400	1405	1410	1415	1420	1425	1430	1435	1440	1445	1450	1455	1460
tgg	gaa	aaa	gat	gaa	atg	aca	aaa	gac	tgc	atg	ctg	gcg	aat	ggc	4239
Trp	Glu	Lys	Asp	Glu	Met	Thr	Lys	Asp	Cys	Met	Leu	Ala	Asn	Gly	
1400	1405	1410	1415	1420	1425	1430	1435	1440	1445	1450	1455	1460	1465	1470	1475
aaa	ctg	gat	gag	gat	tac	gag	gag	gag	gat	gag	gag	gag	gag	agc	4284
Lys	Leu	Asp	Glu	Asp	Tyr	Glu	Glu	Glu	Asp	Glu	Glu	Glu	Glu	Ser	
1415	1420	1425	1430	1435	1440	1445	1450	1455	1460	1465	1470	1475	1480	1485	1490
ctg	atg	tgg	agg	gct	ccg	aag	gaa	gag	gct	gac	tat	gaa	gat	gat	4329
Leu	Met	Trp	Arg	Ala	Pro	Lys	Glu	Glu	Ala	Asp	Tyr	Glu	Asp	Asp	
1430	1435	1440	1445	1450	1455	1460	1465	1470	1475	1480	1485	1490	1495	1500	1505
ttc	ctg	gag	tat	gat	cag	gaa	cat	atc	aga	ttt	ata	gat	aat	atg	4374
Phe	Leu	Glu	Tyr	Asp	Gln	Glu	His	Ile	Arg	Phe	Ile	Asp	Asn	Met	
1445	1450	1455	1460	1465	1470	1475	1480	1485	1490	1495	1500	1505	1510	1515	1520
tta	atg	ggg	tca	gga	gct	ttt	gta	aag	aaa	atc	tct	ctt	tct	cct	4419
Leu	Met	Gly	Ser	Gly	Ala	Phe	Val	Lys	Lys	Ile	Ser	Leu	Ser	Pro	
1460	1465	1470	1475	1480	1485	1490	1495	1500	1505	1510	1515	1520	1525	1530	1535
ttt	tca	acc	act	gat	tct	gca	tat	gaa	tgg	aaa	atg	ccc	aaa	aaa	4464
Phe	Ser	Thr	Thr	Asp	Ser	Ala	Tyr	Glu	Trp	Lys	Met	Pro	Lys	Lys	
1475	1480	1485	1490	1495	1500	1505	1510	1515	1520	1525	1530	1535	1540	1545	1550
tcc	tcc	tta	ggt	agt	atg	cca	ttt	tca	tca	gat	ttt	gag	gat	ttt	4509

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Ser	Ser	Leu	Gly	Ser	Met	Pro	Phe	Ser	Ser	Asp	Phe	Glu	Asp	Phe	
	1490					1495					1500				
gac	tac	agc	tct	tgg	gat	gca	atg	tgc	tat	ctg	gat	cct	agc	aaa	4554
Asp	Tyr	Ser	Ser	Trp	Asp	Ala	Met	Cys	Tyr	Leu	Asp	Pro	Ser	Lys	
	1505					1510					1515				
gct	gtt	gaa	gaa	gat	gac	ttt	gtg	gtg	ggg	ttc	tgg	aat	cca	tca	4599
Ala	Val	Glu	Glu	Asp	Asp	Phe	Val	Val	Gly	Phe	Trp	Asn	Pro	Ser	
	1520					1525					1530				
gaa	gaa	aac	tgt	ggt	gtt	gac	acg	gga	aag	cag	tcc	att	tct	tac	4644
Glu	Glu	Asn	Cys	Gly	Val	Asp	Thr	Gly	Lys	Gln	Ser	Ile	Ser	Tyr	
	1535					1540					1545				
gac	ttg	cac	act	gag	cag	tgt	att	gct	gac	aaa	agc	ata	gcg	gac	4689
Asp	Leu	His	Thr	Glu	Gln	Cys	Ile	Ala	Asp	Lys	Ser	Ile	Ala	Asp	
	1550					1555					1560				
tgt	gtg	gaa	gcc	ctg	ctg	ggc	tgc	tat	tta	acc	agc	tgt	ggg	gag	4734
Cys	Val	Glu	Ala	Leu	Leu	Gly	Cys	Tyr	Leu	Thr	Ser	Cys	Gly	Glu	
	1565					1570					1575				
agg	gct	gct	cag	ctt	ttc	ctc	tgt	tca	ctg	ggg	ctg	aag	gtg	ctc	4779
Arg	Ala	Ala	Gln	Leu	Phe	Leu	Cys	Ser	Leu	Gly	Leu	Lys	Val	Leu	
	1580					1585					1590				
ccg	gta	att	aaa	agg	act	gat	cgg	gaa	aag	gcc	ctg	tgc	cct	act	4824
Pro	Val	Ile	Lys	Arg	Thr	Asp	Arg	Glu	Lys	Ala	Leu	Cys	Pro	Thr	
	1595					1600					1605				
cgg	gag	aat	ttc	aac	agc	caa	caa	aag	aac	ctt	tca	gtg	agc	tgt	4869
Arg	Glu	Asn	Phe	Asn	Ser	Gln	Gln	Lys	Asn	Leu	Ser	Val	Ser	Cys	
	1610					1615					1620				
gct	gct	gct	tct	gtg	gcc	agt	tca	cgc	tct	tct	gta	ttg	aaa	gac	4914
Ala	Ala	Ala	Ser	Val	Ala	Ser	Ser	Arg	Ser	Ser	Val	Leu	Lys	Asp	
	1625					1630					1635				
tcg	gaa	tat	ggt	tgt	ttg	aag	att	cca	cca	aga	tgt	atg	ttt	gat	4959
Ser	Glu	Tyr	Gly	Cys	Leu	Lys	Ile	Pro	Pro	Arg	Cys	Met	Phe	Asp	
	1640					1645					1650				
cat	cca	gat	gca	gat	aaa	aca	ctg	aat	cac	ctt	ata	tcg	ggg	ttt	5004
His	Pro	Asp	Ala	Asp	Lys	Thr	Leu	Asn	His	Leu	Ile	Ser	Gly	Phe	
	1655					1660					1665				
gaa	aat	ttt	gaa	aag	aaa	atc	aac	tac	aga	ttc	aag	aat	aag	gct	5049
Glu	Asn	Phe	Glu	Lys	Lys	Ile	Asn	Tyr	Arg	Phe	Lys	Asn	Lys	Ala	
	1670					1675					1680				
tac	ctt	ctc	cag	gct	ttt	aca	cat	gcc	tcc	tac	cac	tac	aat	act	5094
Tyr	Leu	Leu	Gln	Ala	Phe	Thr	His	Ala	Ser	Tyr	His	Tyr	Asn	Thr	
	1685					1690					1695				
atc	act	gat	tgt	tac	cag	cgc	tta	gaa	ttc	ctg	gga	gat	gcg	att	5139
Ile	Thr	Asp	Cys	Tyr	Gln	Arg	Leu	Glu	Phe	Leu	Gly	Asp	Ala	Ile	
	1700					1705					1710				
ttg	gac	tac	ctc	ata	acc	aag	cac	ctt	tat	gaa	gac	ccg	cgg	cag	5184
Leu	Asp	Tyr	Leu	Ile	Thr	Lys	His	Leu	Tyr	Glu	Asp	Pro	Arg	Gln	
	1715					1720					1725				
cac	tcc	ccg	ggg	gtc	ctg	aca	gac	ctg	cgg	tct	gcc	ctg	gtc	aac	5229
His	Ser	Pro	Gly	Val	Leu	Thr	Asp	Leu	Arg	Ser	Ala	Leu	Val	Asn	
	1730					1735					1740				
aac	acc	atc	ttt	gca	tcg	ctg	gct	gta	aag	tac	gac	tac	cac	aag	5274
Asn	Thr	Ile	Phe	Ala	Ser	Leu	Ala	Val	Lys	Tyr	Asp	Tyr	His	Lys	
	1745					1750					1755				
tac	ttc	aaa	gct	gtc	tct	cct	gag	ctc	ttc	cat	gtc	att	gat	gac	5319
Tyr	Phe	Lys	Ala	Val	Ser	Pro	Glu	Leu	Phe	His	Val	Ile	Asp	Asp	
	1760					1765					1770				
ttt	gtg	cag	ttt	cag	ctt	gag	aag	aat	gaa	atg	caa	gga	atg	gat	5364
Phe	Val	Gln	Phe	Gln	Leu	Glu	Lys	Asn	Glu	Met	Gln	Gly	Met	Asp	
	1775					1780					1785				
tct	gag	ctt	agg	aga	tct	gag	gag	gat	gaa	gag	aaa	gaa	gag	gat	5409
Ser	Glu	Leu	Arg	Arg	Ser	Glu	Glu	Asp	Glu	Glu	Lys	Glu	Glu	Asp	
	1790					1795					1800				
att	gaa	gtt	cca	aag	gcc	atg	ggg	gat	att	ttt	gag	tcg	ctt	gct	5454

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Ile	Glu	Val	Pro	Lys	Ala	Met	Gly	Asp	Ile	Phe	Glu	Ser	Leu	Ala	
1805						1810					1815				
ggg	gcc	att	tac	atg	gat	agt	ggg	atg	tca	ctg	gag	aca	gtc	tgg	5499
Gly	Ala	Ile	Tyr	Met	Asp	Ser	Gly	Met	Ser	Leu	Glu	Thr	Val	Trp	
1820						1825					1830				
cag	gtg	tac	tat	ccc	atg	atg	cgg	cca	cta	ata	gaa	aag	ttt	tct	5544
Gln	Val	Tyr	Tyr	Pro	Met	Met	Arg	Pro	Leu	Ile	Glu	Lys	Phe	Ser	
1835						1840					1845				
gca	aat	gta	ccc	cgt	tcc	cct	gtg	cga	gaa	ttg	ctt	gaa	atg	gaa	5589
Ala	Asn	Val	Pro	Arg	Ser	Pro	Val	Arg	Glu	Leu	Leu	Glu	Met	Glu	
1850						1855					1860				
cca	gaa	act	gcc	aaa	ttt	agc	ccg	gct	gag	aga	act	tac	gac	ggg	5634
Pro	Glu	Thr	Ala	Lys	Phe	Ser	Pro	Ala	Glu	Arg	Thr	Tyr	Asp	Gly	
1865						1870					1875				
aag	gtc	aga	gtc	act	gtg	gaa	gta	gta	gga	aag	ggg	aaa	ttt	aaa	5679
Lys	Val	Arg	Val	Thr	Val	Glu	Val	Val	Gly	Lys	Gly	Lys	Phe	Lys	
1880						1885					1890				
ggg	gtt	ggg	cga	agt	tac	agg	att	gcc	aaa	tct	gca	gca	gca	aga	5724
Gly	Val	Gly	Arg	Ser	Tyr	Arg	Ile	Ala	Lys	Ser	Ala	Ala	Ala	Arg	
1895						1900					1905				
aga	gcc	ctc	cga	agc	ctc	aaa	gct	aat	caa	cct	cag	gtt	ccc	aat	5769
Arg	Ala	Leu	Arg	Ser	Leu	Lys	Ala	Asn	Gln	Pro	Gln	Val	Pro	Asn	
1910						1915					1920				
agc	tga														5775
Ser															

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 <211> 1924
 <212> PRT
 <213> Homo sapiens

<400> 2

Met	Lys	Ser	Pro	Ala	Leu	Gln	Pro	Leu	Ser	Met	Ala	Gly	Leu	Gln	Leu
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Met	Thr	Pro	Ala	Ser	Ser	Pro	Met	Gly	Pro	Phe	Phe	Gly	Leu	Pro	Trp
			20					25					30		
Gln	Gln	Glu	Ala	Ile	His	Asp	Asn	Ile	Tyr	Thr	Pro	Arg	Lys	Tyr	Gln
		35					40					45			
Val	Glu	Leu	Leu	Glu	Ala	Ala	Leu	Asp	His	Asn	Thr	Ile	Val	Cys	Leu
	50				55						60				
Asn	Thr	Gly	Ser	Gly	Lys	Thr	Phe	Ile	Ala	Ser	Thr	Thr	Leu	Leu	Lys
65				70					75					80	
Ser	Cys	Leu	Tyr	Leu	Asp	Leu	Gly	Glu	Thr	Ser	Ala	Arg	Asn	Gly	Lys
			85					90					95		
Arg	Thr	Val	Phe	Leu	Val	Asn	Ser	Ala	Asn	Gln	Val	Ala	Gln	Gln	Val
			100				105						110		
Ser	Ala	Val	Arg	Thr	His	Ser	Asp	Leu	Lys	Val	Gly	Glu	Tyr	Ser	Asn
		115				120					125				
Leu	Glu	Val	Asn	Ala	Ser	Trp	Thr	Lys	Glu	Arg	Trp	Asn	Gln	Glu	Phe
	130					135					140				
Thr	Lys	His	Gln	Val	Leu	Ile	Met	Thr	Cys	Tyr	Val	Ala	Leu	Asn	Val
145					150					155				160	

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Leu Lys Asn Gly Tyr Leu Ser Leu Ser Asp Ile Asn Leu Leu Val Phe
 165 170 175
 Asp Glu Cys His Leu Ala Ile Leu Asp His Pro Tyr Arg Glu Phe Met
 180 185 190
 Lys Leu Cys Glu Ile Cys Pro Ser Cys Pro Arg Ile Leu Gly Leu Thr
 195 200 205
 Ala Ser Ile Leu Asn Gly Lys Trp Asp Pro Glu Asp Leu Glu Glu Lys
 210 215 220
 Phe Gln Lys Leu Glu Lys Ile Leu Lys Ser Asn Ala Glu Thr Ala Thr
 225 230 235 240
 Asp Leu Val Val Leu Asp Arg Tyr Thr Ser Gln Pro Cys Glu Ile Val
 245 250 255
 Val Asp Cys Gly Pro Phe Thr Asp Arg Ser Gly Leu Tyr Glu Arg Leu
 260 265 270
 Leu Met Glu Leu Glu Glu Ala Leu Asn Phe Ile Asn Asp Cys Asn Ile
 275 280 285
 Ser Val His Ser Lys Glu Arg Asp Ser Thr Leu Ile Ser Lys Gln Ile
 290 295 300
 Leu Ser Asp Cys Arg Ala Val Leu Val Val Leu Gly Pro Trp Cys Ala
 305 310 315 320
 Asp Lys Val Ala Gly Met Met Val Arg Glu Leu Gln Lys Tyr Ile Lys
 325 330 335
 His Glu Gln Glu Glu Leu His Arg Lys Phe Leu Leu Phe Thr Asp Thr
 340 345 350
 Phe Leu Arg Lys Ile His Ala Leu Cys Glu Glu His Phe Ser Pro Ala
 355 360 365
 Ser Leu Asp Leu Lys Phe Val Thr Pro Lys Val Ile Lys Leu Leu Glu
 370 375 380
 Ile Leu Arg Lys Tyr Lys Pro Tyr Glu Arg His Ser Phe Glu Ser Val
 385 390 395 400
 Glu Trp Tyr Asn Asn Arg Asn Gln Asp Asn Tyr Val Ser Trp Ser Asp
 405 410 415
 Ser Glu Asp Asp Glu Asp Glu Glu Ile Glu Glu Lys Glu Lys Pro
 420 425 430
 Glu Thr Asn Phe Pro Ser Pro Phe Thr Asn Ile Leu Cys Gly Ile Ile
 435 440 445
 Phe Val Glu Arg Arg Tyr Thr Ala Val Val Leu Asn Arg Leu Ile Lys
 450 455 460
 Glu Ala Gly Lys Gln Asp Pro Glu Leu Ala Tyr Ile Ser Ser Asn Phe
 465 470 475 480
 Ile Thr Gly His Gly Ile Gly Lys Asn Gln Pro Arg Asn Asn Thr Met
 485 490 495

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Glu Ala Glu Phe Arg Lys Gln Glu Glu Val Leu Arg Lys Phe Arg Ala
 500 505 510
 His Glu Thr Asn Leu Leu Ile Ala Thr Ser Ile Val Glu Glu Gly Val
 515 520 525
 Asp Ile Pro Lys Cys Asn Leu Val Val Arg Phe Asp Leu Pro Thr Glu
 530 535 540
 Tyr Arg Ser Tyr Val Gln Ser Lys Gly Arg Ala Arg Ala Pro Ile Ser
 545 550 555 560
 Asn Tyr Ile Met Leu Ala Asp Thr Asp Lys Ile Lys Ser Phe Glu Glu
 565 570 575
 Asp Leu Lys Thr Tyr Lys Ala Ile Glu Lys Ile Leu Arg Asn Lys Cys
 580 585 590
 Ser Lys Ser Val Asp Thr Gly Glu Thr Asp Ile Asp Pro Val Met Asp
 595 600 605
 Asp Asp His Val Phe Pro Pro Tyr Val Leu Arg Pro Asp Asp Gly Gly
 610 615 620
 Pro Arg Val Thr Ile Asn Thr Ala Ile Gly His Ile Asn Arg Tyr Cys
 625 630 635 640
 Ala Arg Leu Pro Ser Asp Pro Phe Thr His Leu Ala Pro Lys Cys Arg
 645 650 655
 Thr Arg Glu Leu Pro Asp Gly Thr Phe Tyr Ser Thr Leu Tyr Leu Pro
 660 665 670
 Ile Asn Ser Pro Leu Arg Ala Ser Ile Val Gly Pro Pro Met Ser Cys
 675 680 685
 Val Arg Leu Ala Glu Arg Val Val Ala Leu Ile Cys Cys Glu Lys Leu
 690 695 700
 His Lys Ile Gly Glu Leu Asp Asp His Leu Met Pro Val Gly Lys Glu
 705 710 715 720
 Thr Val Lys Tyr Glu Glu Glu Leu Asp Leu His Asp Glu Glu Glu Thr
 725 730 735
 Ser Val Pro Gly Arg Pro Gly Ser Thr Lys Arg Arg Gln Cys Tyr Pro
 740 745 750
 Lys Ala Ile Pro Glu Cys Leu Arg Asp Ser Tyr Pro Arg Pro Asp Gln
 755 760 765
 Pro Cys Tyr Leu Tyr Val Ile Gly Met Val Leu Thr Thr Pro Leu Pro
 770 775 780
 Asp Glu Leu Asn Phe Arg Arg Arg Lys Leu Tyr Pro Pro Glu Asp Thr
 785 790 795 800
 Thr Arg Cys Phe Gly Ile Leu Thr Ala Lys Pro Ile Pro Gln Ile Pro
 805 810 815
 His Phe Pro Val Tyr Thr Arg Ser Gly Glu Val Thr Ile Ser Ile Glu
 820 825 830

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Leu Lys Lys Ser Gly Phe Met Leu Ser Leu Gln Met Leu Glu Leu Ile
 835 840 845
 Thr Arg Leu His Gln Tyr Ile Phe Ser His Ile Leu Arg Leu Glu Lys
 850 855 860
 Pro Ala Leu Glu Phe Lys Pro Thr Asp Ala Asp Ser Ala Tyr Cys Val
 865 870 875 880
 Leu Pro Leu Asn Val Val Asn Asp Ser Ser Thr Leu Asp Ile Asp Phe
 885 890 895
 Lys Phe Met Glu Asp Ile Glu Lys Ser Glu Ala Arg Ile Gly Ile Pro
 900 905 910
 Ser Thr Lys Tyr Thr Lys Glu Thr Pro Phe Val Phe Lys Leu Glu Asp
 915 920 925
 Tyr Gln Asp Ala Val Ile Ile Pro Arg Tyr Arg Asn Phe Asp Gln Pro
 930 935 940
 His Arg Phe Tyr Val Ala Asp Val Tyr Thr Asp Leu Thr Pro Leu Ser
 945 950 955 960
 Lys Phe Pro Ser Pro Glu Tyr Glu Thr Phe Ala Glu Tyr Tyr Lys Thr
 965 970 975
 Lys Tyr Asn Leu Asp Leu Thr Asn Leu Asn Gln Pro Leu Leu Asp Val
 980 985 990
 Asp His Thr Ser Ser Arg Leu Asn Leu Leu Thr Pro Arg His Leu Asn
 995 1000 1005
 Gln Lys Gly Lys Ala Leu Pro Leu Ser Ser Ala Glu Lys Arg Lys
 1010 1015 1020
 Ala Lys Trp Glu Ser Leu Gln Asn Lys Gln Ile Leu Val Pro Glu
 1025 1030 1035
 Leu Cys Ala Ile His Pro Ile Pro Ala Ser Leu Trp Arg Lys Ala
 1040 1045 1050
 Val Cys Leu Pro Ser Ile Leu Tyr Arg Leu His Cys Leu Leu Thr
 1055 1060 1065
 Ala Glu Glu Leu Arg Ala Gln Thr Ala Ser Asp Ala Gly Val Gly
 1070 1075 1080
 Val Arg Ser Leu Pro Ala Asp Phe Arg Tyr Pro Asn Leu Asp Phe
 1085 1090 1095
 Gly Trp Lys Lys Ser Ile Asp Ser Lys Ser Phe Ile Ser Ile Ser
 1100 1105 1110
 Asn Ser Ser Ser Ala Glu Asn Asp Asn Tyr Cys Lys His Ser Thr
 1115 1120 1125
 Ile Val Pro Glu Asn Ala Ala His Gln Gly Ala Asn Arg Thr Ser
 1130 1135 1140
 Ser Leu Glu Asn His Asp Gln Met Ser Val Asn Cys Arg Thr Leu
 1145 1150 1155

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Leu Ser Glu Ser Pro Gly Lys Leu His Val Glu Val Ser Ala Asp
 1160 1165 1170
 Leu Thr Ala Ile Asn Gly Leu Ser Tyr Asn Gln Asn Leu Ala Asn
 1175 1180 1185
 Gly Ser Tyr Asp Leu Ala Asn Arg Asp Phe Cys Gln Gly Asn Gln
 1190 1195 1200
 Leu Asn Tyr Tyr Lys Gln Glu Ile Pro Val Gln Pro Thr Thr Ser
 1205 1210 1215
 Tyr Ser Ile Gln Asn Leu Tyr Ser Tyr Glu Asn Gln Pro Gln Pro
 1220 1225 1230
 Ser Asp Glu Cys Thr Leu Leu Ser Asn Lys Tyr Leu Asp Gly Asn
 1235 1240 1245
 Ala Asn Lys Ser Thr Ser Asp Gly Ser Pro Val Met Ala Val Met
 1250 1255 1260
 Pro Gly Thr Thr Asp Thr Ile Gln Val Leu Lys Gly Arg Met Asp
 1265 1270 1275
 Ser Glu Gln Ser Pro Ser Ile Gly Tyr Ser Ser Arg Thr Leu Gly
 1280 1285 1290
 Pro Asn Pro Gly Leu Ile Leu Gln Ala Leu Thr Leu Ser Asn Ala
 1295 1300 1305
 Ser Asp Gly Phe Asn Leu Glu Arg Leu Glu Met Leu Gly Asp Ser
 1310 1315 1320
 Phe Leu Lys His Ala Ile Thr Thr Tyr Leu Phe Cys Thr Tyr Pro
 1325 1330 1335
 Asp Ala His Glu Gly Arg Leu Ser Tyr Met Arg Ser Lys Lys Val
 1340 1345 1350
 Ser Asn Cys Asn Leu Tyr Arg Leu Gly Lys Lys Lys Gly Leu Pro
 1355 1360 1365
 Ser Arg Met Val Val Ser Ile Phe Asp Pro Pro Val Asn Trp Leu
 1370 1375 1380
 Pro Pro Gly Tyr Val Val Asn Gln Asp Lys Ser Asn Thr Asp Lys
 1385 1390 1395
 Trp Glu Lys Asp Glu Met Thr Lys Asp Cys Met Leu Ala Asn Gly
 1400 1405 1410
 Lys Leu Asp Glu Asp Tyr Glu Glu Glu Asp Glu Glu Glu Ser
 1415 1420 1425
 Leu Met Trp Arg Ala Pro Lys Glu Glu Ala Asp Tyr Glu Asp Asp
 1430 1435 1440
 Phe Leu Glu Tyr Asp Gln Glu His Ile Arg Phe Ile Asp Asn Met
 1445 1450 1455
 Leu Met Gly Ser Gly Ala Phe Val Lys Lys Ile Ser Leu Ser Pro
 1460 1465 1470

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Phe	Ser	Thr	Thr	Asp	Ser	Ala	Tyr	Glu	Trp	Lys	Met	Pro	Lys	Lys
1475						1480					1485			
Ser	Ser	Leu	Gly	Ser	Met	Pro	Phe	Ser	Ser	Asp	Phe	Glu	Asp	Phe
1490						1495					1500			
Asp	Tyr	Ser	Ser	Trp	Asp	Ala	Met	Cys	Tyr	Leu	Asp	Pro	Ser	Lys
1505						1510					1515			
Ala	Val	Glu	Glu	Asp	Asp	Phe	Val	Val	Gly	Phe	Trp	Asn	Pro	Ser
1520						1525					1530			
Glu	Glu	Asn	Cys	Gly	Val	Asp	Thr	Gly	Lys	Gln	Ser	Ile	Ser	Tyr
1535						1540					1545			
Asp	Leu	His	Thr	Glu	Gln	Cys	Ile	Ala	Asp	Lys	Ser	Ile	Ala	Asp
1550						1555					1560			
Cys	Val	Glu	Ala	Leu	Leu	Gly	Cys	Tyr	Leu	Thr	Ser	Cys	Gly	Glu
1565						1570					1575			
Arg	Ala	Ala	Gln	Leu	Phe	Leu	Cys	Ser	Leu	Gly	Leu	Lys	Val	Leu
1580						1585					1590			
Pro	Val	Ile	Lys	Arg	Thr	Asp	Arg	Glu	Lys	Ala	Leu	Cys	Pro	Thr
1595						1600					1605			
Arg	Glu	Asn	Phe	Asn	Ser	Gln	Gln	Lys	Asn	Leu	Ser	Val	Ser	Cys
1610						1615					1620			
Ala	Ala	Ala	Ser	Val	Ala	Ser	Ser	Arg	Ser	Ser	Val	Leu	Lys	Asp
1625						1630					1635			
Ser	Glu	Tyr	Gly	Cys	Leu	Lys	Ile	Pro	Pro	Arg	Cys	Met	Phe	Asp
1640						1645					1650			
His	Pro	Asp	Ala	Asp	Lys	Thr	Leu	Asn	His	Leu	Ile	Ser	Gly	Phe
1655						1660					1665			
Glu	Asn	Phe	Glu	Lys	Lys	Ile	Asn	Tyr	Arg	Phe	Lys	Asn	Lys	Ala
1670						1675					1680			
Tyr	Leu	Leu	Gln	Ala	Phe	Thr	His	Ala	Ser	Tyr	His	Tyr	Asn	Thr
1685						1690					1695			
Ile	Thr	Asp	Cys	Tyr	Gln	Arg	Leu	Glu	Phe	Leu	Gly	Asp	Ala	Ile
1700						1705					1710			
Leu	Asp	Tyr	Leu	Ile	Thr	Lys	His	Leu	Tyr	Glu	Asp	Pro	Arg	Gln
1715						1720					1725			
His	Ser	Pro	Gly	Val	Leu	Thr	Asp	Leu	Arg	Ser	Ala	Leu	Val	Asn
1730						1735					1740			
Asn	Thr	Ile	Phe	Ala	Ser	Leu	Ala	Val	Lys	Tyr	Asp	Tyr	His	Lys
1745						1750					1755			
Tyr	Phe	Lys	Ala	Val	Ser	Pro	Glu	Leu	Phe	His	Val	Ile	Asp	Asp
1760						1765					1770			
Phe	Val	Gln	Phe	Gln	Leu	Glu	Lys	Asn	Glu	Met	Gln	Gly	Met	Asp
1775						1780					1785			

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Ser Glu Leu Arg Arg Ser Glu Glu Asp Glu Glu Lys Glu Glu Asp
1790 1795 1800

Ile Glu Val Pro Lys Ala Met Gly Asp Ile Phe Glu Ser Leu Ala
1805 1810 1815

Gly Ala Ile Tyr Met Asp Ser Gly Met Ser Leu Glu Thr Val Trp
1820 1825 1830

Gln Val Tyr Tyr Pro Met Met Arg Pro Leu Ile Glu Lys Phe Ser
1835 1840 1845

Ala Asn Val Pro Arg Ser Pro Val Arg Glu Leu Leu Glu Met Glu
1850 1855 1860

Pro Glu Thr Ala Lys Phe Ser Pro Ala Glu Arg Thr Tyr Asp Gly
1865 1870 1875

Lys Val Arg Val Thr Val Glu Val Val Gly Lys Gly Lys Phe Lys
1880 1885 1890

Gly Val Gly Arg Ser Tyr Arg Ile Ala Lys Ser Ala Ala Ala Arg
1895 1900 1905

Arg Ala Leu Arg Ser Leu Lys Ala Asn Gln Pro Gln Val Pro Asn
1910 1915 1920

Ser

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<212> DNA
<213> Drosophila melanogaster

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<222> (1)..(6750)
<223>

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ccg cgc gac ttt cag gtg gag cta ctg gcc acc gcc tac gag cgg aac 96
Pro Arg Asp Phe Gln Val Glu Leu Ala Thr Ala Tyr Glu Arg Asn
20 25 30
acg att att tgc ctg ggc cat cga agt tcc aag gag ttt ata gcc ctc 144
Thr Ile Ile Cys Leu Gly His Arg Ser Ser Lys Glu Phe Ile Ala Leu
35 40 45
aag ctg ctc cag gag ctg tgc cgt cga gca cgc cga cat ggt cgt gtc 192
Lys Leu Leu Gln Glu Leu Ser Arg Arg Ala Arg Arg His Gly Arg Val
50 55 60
agt gtc tat ctc agt tgc gag gtt ggc acc agc acg gaa cca tgc tcc 240
Ser Val Tyr Leu Ser Cys Glu Val Gly Thr Ser Thr Glu Pro Cys Ser
65 70 75 80
atc tac acg atg ctc acc cac ttg act gac ctg cgg gtg tgg cag gag 288
Ile Tyr Thr Met Leu Thr His Leu Thr Asp Leu Arg Val Trp Gln Glu
85 90 95
cag ccg gat atg caa att ccc ttt gat cat tgc tgg acg gac tat cac 336
Gln Pro Asp Met Gln Ile Pro Phe Asp His Cys Trp Thr Asp Tyr His
100 105 110
gtt tcc atc cta cgg cca gag gga ttt ctt tat ctg ctc gaa act cgc 384

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Val	Ser	Ile	Leu	Arg	Pro	Glu	Gly	Phe	Leu	Tyr	Leu	Leu	Glu	Thr	Arg	
		115					120					125				
gag	ctg	ctg	ctg	agc	agc	gtc	gaa	ctg	atc	gtg	ctg	gaa	gat	tgt	cat	432
Glu	Leu	Leu	Leu	Ser	Ser	Val	Glu	Leu	Ile	Val	Leu	Glu	Asp	Cys	His	
		130					135					140				
gac	agc	gcc	gtt	tat	cag	agg	ata	agg	cct	ctg	ttc	gag	aat	cac	att	480
Asp	Ser	Ala	Val	Tyr	Gln	Arg	Ile	Arg	Pro	Leu	Phe	Glu	Asn	His	Ile	
145					150					155					160	
atg	cca	gcg	cca	ccg	gac	agg	cca	cgg	att	ctc	gga	ctc	gct	gga		528
Met	Pro	Ala	Pro	Pro	Ala	Asp	Arg	Pro	Arg	Ile	Leu	Gly	Leu	Ala	Gly	
				165					170					175		
ccg	ctg	cac	agc	gcc	gga	tgt	gag	ctg	cag	caa	ctg	agc	gcc	atg	ctg	576
Pro	Leu	His	Ser	Ala	Gly	Cys	Glu	Leu	Gln	Gln	Leu	Ser	Ala	Met	Leu	
			180					185					190			
gcc	acc	ctg	gag	cag	agt	gtg	ctt	tgc	cag	atc	gag	acg	gcc	agt	gat	624
Ala	Thr	Leu	Glu	Gln	Ser	Val	Leu	Cys	Gln	Ile	Glu	Thr	Ala	Ser	Asp	
		195					200					205				
att	gtc	acc	gtg	ttg	cgt	tac	tgt	tcc	cga	ccg	cac	gaa	tac	atc	gta	672
Ile	Val	Thr	Val	Leu	Arg	Tyr	Cys	Ser	Arg	Pro	His	Glu	Tyr	Ile	Val	
		210				215					220					
cag	tgc	gcc	ccc	ttc	gag	atg	gac	gaa	ctg	tcc	ctg	gtg	ctt	gcc	gat	720
Gln	Cys	Ala	Pro	Phe	Glu	Met	Asp	Glu	Leu	Ser	Leu	Val	Leu	Ala	Asp	
225				230				235						240		
gtg	ctc	aac	aca	cac	aag	tcc	ttt	tta	ttg	gac	cac	cgc	tac	gat	ccc	768
Val	Leu	Asn	Thr	His	Lys	Ser	Phe	Leu	Leu	Asp	His	Arg	Tyr	Asp	Pro	
				245				250						255		
tac	gaa	atc	tac	ggc	aca	gac	cag	ttt	atg	gac	gaa	ctg	aaa	gac	ata	816
Tyr	Glu	Ile	Tyr	Gly	Thr	Asp	Gln	Phe	Met	Asp	Glu	Leu	Lys	Asp	Ile	
			260				265						270			
ccc	gat	ccc	aag	gtg	gac	ccc	ctg	aac	gtc	atc	aac	tca	cta	ctg	gtc	864
Pro	Asp	Pro	Lys	Val	Asp	Pro	Leu	Asn	Val	Ile	Asn	Ser	Leu	Leu	Val	
		275					280					285				
gtg	ctg	cac	gag	atg	ggt	cct	tgg	tgc	acg	cag	cgg	gct	gca	cat	cac	912
Val	Leu	His	Glu	Met	Gly	Pro	Trp	Cys	Thr	Gln	Arg	Ala	Ala	His	His	
		290				295					300					
ttt	tac	caa	tgc	aat	gag	aag	tta	aag	gtg	aag	acg	ccg	cac	gaa	cgt	960
Phe	Tyr	Gln	Cys	Asn	Glu	Lys	Leu	Lys	Val	Lys	Thr	Pro	His	Glu	Arg	
305					310					315					320	
cac	tac	ttg	ctg	tac	tgc	cta	gtg	agc	acg	gcc	ctt	atc	caa	ctg	tac	1008
His	Tyr	Leu	Leu	Tyr	Cys	Leu	Val	Ser	Thr	Ala	Leu	Ile	Gln	Leu	Tyr	
				325				330						335		
tcc	ctc	tgc	gaa	cac	gca	ttc	cat	cga	cat	tta	gga	agt	ggc	agc	gat	1056
Ser	Leu	Cys	Glu	His	Ala	Phe	His	Arg	His	Leu	Gly	Ser	Gly	Ser	Asp	
			340					345					350			
tca	cgc	cag	acc	atc	gaa	cgc	tat	tcc	agc	ccc	aag	gtg	cga	cgt	ctg	1104
Ser	Arg	Gln	Thr	Ile	Glu	Arg	Tyr	Ser	Ser	Pro	Lys	Val	Arg	Arg	Leu	
		355					360					365				
ttg	cag	aca	ctg	agg	tgc	ttc	aag	ccg	gaa	gag	gtg	cac	acc	caa	gcg	1152
Leu	Gln	Thr	Leu	Arg	Cys	Phe	Lys	Pro	Glu	Glu	Val	His	Thr	Gln	Ala	
		370				375					380					
gac	gga	ctg	cgc	aga	atg	cgg	cat	cag	gtg	gat	cag	gcg	gac	ttc	aat	1200
Asp	Gly	Leu	Arg	Arg	Met	Arg	His	Gln	Val	Asp	Gln	Ala	Asp	Phe	Asn	
385					390					395					400	
cgg	tta	tct	cat	acg	ctg	gaa	agc	aag	tgc	cga	atg	gtg	gat	caa	atg	1248
Arg	Leu	Ser	His	Thr	Leu	Glu	Ser	Lys	Cys	Arg	Met	Val	Asp	Gln	Met	
				405				410						415		
gac	caa	ccg	ccg	acg	gag	aca	cga	gcc	ctg	gtg	gcc	act	ctt	gag	cag	1296
Asp	Gln	Pro	Pro	Thr	Glu	Thr	Arg	Ala	Leu	Val	Ala	Thr	Leu	Glu	Gln	
			420					425					430			
att	ctg	cac	acg	aca	gag	gac	agg	cag	acg	aac	aga	agc	gcc	gct	cgg	1344
Ile	Leu	His	Thr	Thr	Glu	Asp	Arg	Gln	Thr	Asn	Arg	Ser	Ala	Ala	Arg	
		435					440					445				
gtg	act	cct	act	cct	act	ccc	gct	cat	gcg	aag	ccg	aaa	cct	agc	tct	1392

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Val	Thr	Pro	Thr	Pro	Thr	Pro	Ala	His	Ala	Lys	Pro	Lys	Pro	Ser	Ser	
450	455	460														
ggt gcc aac act gca caa cca cga act cgt aga cgt gtg tac acc agg																1440
Gly Ala Asn Thr Ala Gln Pro Arg Thr Arg Arg Val Tyr Thr Arg																
465 470 475 480																
cgc cac cac cgg gat cac aat gat ggc agc gac acg ctc tgc gca ctg																1488
Arg His His Arg Asp His Asn Asp Gly Ser Asp Thr Leu Cys Ala Leu																
485 490 495																
att tac tgc aac cag aac cac acg gct cgc gtg ctc ttt gag ctt cta																1536
Ile Tyr Cys Asn Gln Asn His Thr Ala Arg Val Leu Phe Glu Leu Leu																
500 505 510																
gcg gag att agc aga cgt gat ccc gat ctc aag ttc cta cgc tgc cag																1584
Ala Glu Ile Ser Arg Arg Asp Pro Asp Leu Lys Phe Leu Arg Cys Gln																
515 520 525																
tac acc acg gac cgg gtg gca gat ccc acc acg gag ccc aaa gag gct																1632
Tyr Thr Thr Asp Arg Val Ala Asp Pro Thr Thr Glu Pro Lys Glu Ala																
530 535 540																
gag ttg gag cac cgg cgg cag gaa gag gtg cta aag cgc ttc cgc atg																1680
Glu Leu Glu His Arg Arg Gln Glu Glu Val Leu Lys Arg Phe Arg Met																
545 550 555																
cat gac tgc aat gtc ctg atc ggt act tcg gtg ctg gaa gag ggc atc																1728
His Asp Cys Asn Val Leu Ile Gly Thr Ser Val Leu Glu Glu Gly Ile																
565 570 575																
gat gtg ccc aag tgc aat ttg gtt gtg cgc tgg gat ccg cca acc aca																1776
Asp Val Pro Lys Cys Asn Leu Val Val Arg Trp Asp Pro Thr Thr																
580 585 590																
tat cgc agt tac gtt cag tgc aaa ggt cga gcc cgt gct gct cca gcc																1824
Tyr Arg Ser Tyr Val Gln Cys Lys Gly Arg Ala Arg Ala Ala Pro Ala																
595 600 605																
tat cat gtc att ctc gtc gct ccg agt tat aaa agc cca act gtg ggg																1872
Tyr His Val Ile Leu Val Ala Pro Ser Tyr Lys Ser Pro Thr Val Gly																
610 615 620																
tca gtg cag ctg acc gat cgg agt cat cgg tat att tgc gcg act ggt																1920
Ser Val Gln Leu Thr Asp Arg Ser His Arg Tyr Ile Cys Ala Thr Gly																
625 630 635																
gat act aca gag gcg gac agc gac tct gat gat tca gcg atg cca aac																1968
Asp Thr Thr Glu Ala Asp Ser Asp Ser Asp Ser Ser Ala Met Pro Asn																
645 650 655																
tcg tcc ggc tcg gat ccc tat act ttt ggc acg gca cgc gga acc gtg																2016
Ser Ser Gly Ser Asp Pro Tyr Thr Phe Gly Thr Ala Arg Gly Thr Val																
660 665 670																
aag atc ctc aac ccc gaa gtg ttc agt aaa caa cca ccg aca gcg tgc																2064
Lys Ile Leu Asn Pro Glu Val Phe Ser Lys Gln Pro Pro Thr Ala Cys																
675 680 685																
gac att aag ctg cag gag atc cag gac gaa ttg cca gcc gcg gcg cag																2112
Asp Ile Lys Leu Gln Glu Ile Gln Asp Glu Leu Pro Ala Ala Ala Gln																
690 695 700																
ctg gat acg agc aac tcc agc gac gaa gcc gtc agc atg agt aac acg																2160
Leu Asp Thr Ser Asn Ser Ser Asp Glu Ala Val Ser Met Ser Asn Thr																
705 710 715																
tct cca agc gag agc agt aca gaa caa aaa tcc aga cgc ttc cag tgc																2208
Ser Pro Ser Glu Ser Ser Thr Glu Gln Lys Ser Arg Arg Phe Gln Cys																
725 730 735																
gag ctg agc tct tta acg gag cca gaa gac aca agt gat act aca gcc																2256
Glu Leu Ser Ser Leu Thr Glu Pro Glu Asp Thr Ser Asp Thr Thr Ala																
740 745 750																
gaa atc gat act gct cat agt tta gcc agc acc acg aag gac ttg gtg																2304
Glu Ile Asp Thr Ala His Ser Leu Ala Ser Thr Thr Lys Asp Leu Val																
755 760 765																
cat caa atg gca cag tat cgc gaa atc gag cag atg ctg cta tcc aag																2352
His Gln Met Ala Gln Tyr Arg Glu Ile Glu Gln Met Leu Leu Ser Lys																
770 775 780																
tgc gcc aac aca gag ccg ccg gag cag gag cag agt gag gcg gaa cgt																2400

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Cys	Ala	Asn	Thr	Glu	Pro	Pro	Glu	Gln	Glu	Gln	Ser	Glu	Ala	Glu	Arg		
785					790				795						800		
ttt	agt	gcc	tgc	ctg	gcc	gca	tac	cga	ccc	aag	ccg	cac	ctg	cta	aca		2448
Phe	Ser	Ala	Cys	Leu	Ala	Ala	Tyr	Arg	Pro	Lys	Pro	His	Leu	Leu	Thr		
				805					810					815			
ggc	gcc	tcc	gtg	gat	ctg	ggg	tct	gct	ata	gct	ttg	gtc	aac	aag	tac		2496
Gly	Ala	Ser	Val	Asp	Leu	Gly	Ser	Ala	Ile	Ala	Leu	Val	Asn	Lys	Tyr		
			820					825					830				
tgc	gcc	cga	ctg	cca	agc	gac	acg	ttc	acc	aag	ttg	acg	gcg	ttg	tg		2544
Cys	Ala	Arg	Leu	Pro	Ser	Asp	Thr	Phe	Thr	Lys	Leu	Thr	Ala	Leu	Trp		
		835					840					845					
cgc	tgc	acc	cga	aac	gaa	agg	gct	gga	gtg	acc	ctg	ttt	cag	tac	aca		2592
Arg	Cys	Thr	Arg	Asn	Glu	Arg	Ala	Gly	Val	Thr	Leu	Phe	Gln	Tyr	Thr		
	850					855					860						
ctc	cgt	ctg	ccc	atc	aac	tcg	cca	ttg	aag	cat	gac	att	gtg	ggg	ctt		2640
Leu	Arg	Leu	Pro	Ile	Asn	Ser	Pro	Leu	Lys	His	Asp	Ile	Val	Gly	Leu		
865				870						875				880			
ccg	atg	cca	act	caa	aca	ttg	gcc	cgc	cga	ctg	gct	gcc	ttg	cag	gct		2688
Pro	Met	Pro	Thr	Gln	Thr	Leu	Ala	Arg	Arg	Leu	Ala	Ala	Leu	Gln	Ala		
				885					890					895			
tgc	gtg	gaa	ctg	cac	agg	atc	ggg	gag	tta	gac	gat	cag	ttg	cag	cct		2736
Cys	Val	Glu	Leu	His	Arg	Ile	Gly	Glu	Leu	Asp	Asp	Gln	Leu	Gln	Pro		
		900					905					910					
atc	ggc	aag	gag	gga	ttt	cgt	gcc	ctg	gag	ccg	gac	tg	gag	tgc	ttt		2784
Ile	Gly	Lys	Glu	Gly	Phe	Arg	Ala	Leu	Glu	Pro	Asp	Trp	Glu	Cys	Phe		
		915					920				925						
gaa	ctg	gag	cca	gag	gac	gaa	cag	att	gtg	cag	cta	agc	gat	gaa	cca		2832
Glu	Leu	Glu	Pro	Glu	Asp	Glu	Gln	Ile	Val	Gln	Leu	Ser	Asp	Glu	Pro		
	930					935				940							
cgt	ccg	gga	aca	acg	aag	cgt	cgt	cag	tac	tat	tac	aaa	cgc	att	gca		2880
Arg	Pro	Gly	Thr	Thr	Lys	Arg	Arg	Gln	Tyr	Tyr	Tyr	Lys	Arg	Ile	Ala		
945				950					955					960			
tcc	gaa	ttt	tgc	gat	tgc	cgt	ccc	gtt	gcc	gga	gcg	cca	tgc	tat	ttg		2928
Ser	Glu	Phe	Cys	Asp	Cys	Arg	Pro	Val	Ala	Gly	Ala	Pro	Cys	Tyr	Leu		
			965					970					975				
tac	ttt	atc	caa	ctg	acg	ctc	caa	tgt	ccg	att	ccc	gaa	gag	caa	aac		2976
Tyr	Phe	Ile	Gln	Leu	Thr	Leu	Gln	Cys	Pro	Ile	Pro	Glu	Glu	Gln	Asn		
		980					985					990					
acg	cgg	gga	cgc	aag	att	tat	ccg	ccc	gaa	gat	gcg	cag	cag	gga	ttc		3024
Thr	Arg	Gly	Arg	Lys	Ile	Tyr	Pro	Pro	Glu	Asp	Ala	Gln	Gln	Gly	Phe		
		995					1000					1005					
ggc	att	cta	acc	acc	aaa	cgg	ata	ccc	aag	ctg	agt	gct	ttc	tcg			3069
Gly	Ile	Leu	Thr	Thr	Lys	Arg	Ile	Pro	Lys	Leu	Ser	Ala	Phe	Ser			
	1010					1015					1020						
ata	ttc	acg	cgt	tcc	ggg	gag	gtg	aag	gtt	tcc	ctg	gag	tta	gct			3114
Ile	Phe	Thr	Arg	Ser	Gly	Glu	Val	Lys	Val	Ser	Leu	Glu	Leu	Ala			
	1025					1030					1035						
aag	gaa	cgc	gtg	att	cta	act	agc	gaa	caa	ata	gtc	tgc	atc	aac			3159
Lys	Glu	Arg	Val	Ile	Leu	Thr	Ser	Glu	Gln	Ile	Val	Cys	Ile	Asn			
	1040					1045					1050						
gga	ttt	tta	aac	tac	acg	ttc	acc	aat	gta	ctg	cgt	ttg	caa	aag			3204
Gly	Phe	Leu	Asn	Tyr	Thr	Phe	Thr	Asn	Val	Leu	Arg	Leu	Gln	Lys			
	1055					1060					1065						
ttt	ctg	atg	ctc	ttc	gat	ccg	gac	tcc	acg	gaa	aat	tgt	gta	ttc			3249
Phe	Leu	Met	Leu	Phe	Asp	Pro	Asp	Ser	Thr	Glu	Asn	Cys	Val	Phe			
	1070					1075					1080						
att	gtg	ccc	acc	gtg	aag	gca	cca	gct	ggc	ggc	aag	cac	atc	gac			3294
Ile	Val	Pro	Thr	Val	Lys	Ala	Pro	Ala	Gly	Gly	Lys	His	Ile	Asp			
	1085					1090					1095						
tg	cag	ttt	ctg	gag	ctg	atc	caa	gcg	aat	gga	aat	aca	atg	cca			3339
Trp	Gln	Phe	Leu	Glu	Leu	Ile	Gln	Ala	Asn	Gly	Asn	Thr	Met	Pro			
	1100					1105					1110						
cgg	gca	gtg	ccc	gat	gag	gag	cgc	cag	gcg	cag	ccg	ttt	gat	ccg			3384

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Arg	Ala	Val	Pro	Asp	Glu	Glu	Arg	Gln	Ala	Gln	Pro	Phe	Asp	Pro	
1115	1115					1120					1125				
caa	cgc	ttc	cag	gat	gcc	gtc	gtt	atg	ccg	tgg	tat	cgc	aac	cag	3429
Gln	Arg	Phe	Gln	Asp	Ala	Val	Val	Met	Pro	Trp	Tyr	Arg	Asn	Gln	
1130	1130					1135					1140				
gat	caa	ccg	cag	tat	ttc	tat	gtg	gcg	gag	ata	tgt	cca	cat	cta	3474
Asp	Gln	Pro	Gln	Tyr	Phe	Tyr	Val	Ala	Glu	Ile	Cys	Pro	His	Leu	
1145	1145					1150					1155				
tcc	cca	ctc	agc	tgc	ttc	cct	ggt	gac	aac	tac	cgc	acg	ttc	aag	3519
Ser	Pro	Leu	Ser	Cys	Phe	Pro	Gly	Asp	Asn	Tyr	Arg	Thr	Phe	Lys	
1160	1160					1165					1170				
cac	tac	tac	ctc	gtc	aag	tat	ggt	ctg	acc	ata	cag	aat	acc	tcg	3564
His	Tyr	Tyr	Leu	Val	Lys	Tyr	Gly	Leu	Thr	Ile	Gln	Asn	Thr	Ser	
1175	1175					1180					1185				
cag	ccg	cta	ttg	gac	gtg	gat	cac	acc	agt	gcg	cgg	tta	aac	ttc	3609
Gln	Pro	Leu	Leu	Asp	Val	Asp	His	Thr	Ser	Ala	Arg	Leu	Asn	Phe	
1190	1190					1195					1200				
ctc	acg	cca	cga	tac	gtt	aat	cgc	aag	ggc	gtt	gct	ctg	ccc	act	3654
Leu	Thr	Pro	Arg	Tyr	Val	Asn	Arg	Lys	Gly	Val	Ala	Leu	Pro	Thr	
1205	1205					1210					1215				
agt	tcg	gag	gag	aca	aag	cgg	gca	aag	cgc	gag	aat	ctc	gaa	cag	3699
Ser	Ser	Glu	Glu	Thr	Lys	Arg	Ala	Lys	Arg	Glu	Asn	Leu	Glu	Gln	
1220	1220					1225					1230				
aag	cag	atc	ctt	gtg	cca	gag	ctc	tgc	act	gtg	cat	cca	ttc	ccc	3744
Lys	Gln	Ile	Leu	Val	Pro	1240	Leu	Cys	Thr	Val	His	Pro	Phe	Pro	
1235	1235					1245					1245				
gcc	tcc	ttg	tgg	cga	act	gcc	gtg	tgc	ctg	ccc	tgc	atc	ctg	tac	3789
Ala	Ser	Leu	Trp	Arg	Thr	Ala	Val	Cys	Leu	Pro	Cys	Ile	Leu	Tyr	
1250	1250					1255					1260				
cgc	ata	aat	ggt	ctt	cta	ttg	gcc	gac	gat	att	cgg	aaa	cag	gtt	3834
Arg	Ile	Asn	Gly	Leu	Leu	Leu	Ala	Asp	Asp	Ile	Arg	Lys	Gln	Val	
1265	1265					1270					1275				
tct	gcg	gat	ctg	ggg	ctg	gga	agg	caa	cag	atc	gaa	gat	gag	gat	3879
Ser	Ala	Asp	Leu	Gly	Leu	Gly	Arg	Gln	Gln	Ile	Glu	Asp	Glu	Asp	
1280	1280					1285					1290				
ttc	gag	tgg	ccc	atg	ctg	gac	ttt	ggg	tgg	agt	cta	tcg	gag	gtg	3924
Phe	Glu	Trp	Pro	Met	Leu	Asp	Phe	Gly	Trp	Ser	Leu	Ser	Glu	Val	
1295	1295					1300					1305				
ctc	aag	aaa	tcg	cgg	gag	tcc	aaa	caa	aag	gag	tcc	ctt	aag	gat	3969
Leu	Lys	Lys	Ser	Arg	Glu	Ser	Lys	Gln	Lys	Glu	Ser	Leu	Lys	Asp	
1310	1310					1315					1320				
gat	act	att	aat	ggc	aaa	gac	tta	gct	gat	gtt	gaa	aag	aaa	ccg	4014
Asp	Thr	Ile	Asn	Gly	Lys	Asp	Leu	Ala	Asp	Val	Glu	Lys	Lys	Pro	
1325	1325					1330					1335				
act	agc	gag	gag	acc	caa	cta	gat	aag	gat	tca	aaa	gac	gat	aag	4059
Thr	Ser	Glu	Glu	Thr	Gln	Leu	Asp	Lys	Asp	Ser	Lys	Asp	Asp	Lys	
1340	1340					1345					1350				
gtt	gag	aaa	agt	gct	att	gaa	cta	atc	att	gag	gga	gag	gag	aag	4104
Val	Glu	Lys	Ser	Ala	Ile	Glu	Leu	Ile	Ile	Glu	Gly	Glu	Glu	Lys	
1355	1355					1360					1365				
ctg	caa	gag	gct	gat	gac	ttc	att	gag	ata	ggc	act	tgg	tca	aac	4149
Leu	Gln	Glu	Ala	Asp	Asp	Phe	Ile	Glu	Ile	Gly	Thr	Trp	Ser	Asn	
1370	1370					1375					1380				
gat	atg	gcc	gac	gat	ata	gct	agt	ttt	aac	caa	gaa	gac	gac	gac	4194
Asp	Met	Ala	Asp	Asp	Ile	Ala	Ser	Phe	Asn	Gln	Glu	Asp	Asp	Asp	
1385	1385					1390					1395				
gag	gat	gac	gcc	ttc	cat	ctc	cca	gtt	tta	ccg	gca	aac	gtt	aag	4239
Glu	Asp	Asp	Ala	Phe	His	Leu	Pro	Val	Leu	Pro	Ala	Asn	Val	Lys	
1400	1400					1405					1410				
ttc	tgt	gat	cag	caa	acg	cgc	tac	ggt	tcg	ccc	aca	ttt	tgg	gat	4284
Phe	Cys	Asp	Gln	Gln	Thr	Arg	Tyr	Gly	Ser	Pro	Thr	Phe	Trp	Asp	
1415	1415					1420					1425				
gtg	agc	aat	ggc	gaa	agc	ggc	ttc	aag	ggt	cca	aag	agc	agt	cag	4329

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Val	Ser	Asn	Gly	Glu	Ser	Gly	Phe	Lys	Gly	Pro	Lys	Ser	Ser	Gln	
1430	1435	1440													
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Asn	Lys	Gln	Gly	Gly	Lys	Gly	Lys	Ala	Lys	Gly	Pro	Ala	Lys	Pro	
1445	1450	1455													
aca	ttt	aac	tat	tat	gac	tcg	gac	aat	tcg	ctg	ggt	tcc	agc	tac	4419
Thr	Phe	Asn	Tyr	Tyr	Asp	Ser	Asp	Asn	Ser	Leu	Gly	Ser	Ser	Tyr	
1460	1465	1470													
gat	gac	gac	gat	aac	gca	ggt	ccg	ctc	aat	tac	atg	cat	cac	aac	4464
Asp	Asp	Asp	Asp	Asn	Ala	Gly	Pro	Leu	Asn	Tyr	Met	His	His	Asn	
1475	1480	1485													
tac	agt	tcg	gat	gac	gac	gat	gtg	gca	gat	gat	atc	gat	gcg	gga	4509
Tyr	Ser	Ser	Asp	Asp	Asp	Asp	Val	Ala	Asp	Asp	Ile	Asp	Ala	Gly	
1490	1495	1500													
cgc	att	gcg	ttc	acc	tcc	aag	aat	gaa	gcg	gag	act	att	gaa	acc	4554
Arg	Ile	Ala	Phe	Thr	Ser	Lys	Asn	Glu	Ala	Glu	Thr	Ile	Glu	Thr	
1505	1510	1515													
gca	cag	gaa	gtg	gaa	aag	cgc	cag	aag	cag	ctg	tcc	atc	atc	cag	4599
Ala	Gln	Glu	Val	Glu	Lys	Arg	Gln	Lys	Gln	Leu	Ser	Ile	Ile	Gln	
1520	1525	1530													
gcg	acc	aat	gct	aac	gag	cgg	cag	tat	cag	cag	aca	aag	aac	ctg	4644
Ala	Thr	Asn	Ala	Asn	Glu	Arg	Gln	Tyr	Gln	Gln	Thr	Lys	Asn	Leu	
1535	1540	1545													
ctc	att	gga	ttc	aat	ttt	aag	cat	gag	gac	cag	aag	gaa	cct	gcc	4689
Leu	Ile	Gly	Phe	Asn	Phe	Lys	His	Glu	Asp	Gln	Lys	Glu	Pro	Ala	
1550	1555	1560													
act	ata	aga	tat	gaa	gaa	tcc	ata	gct	aag	ctc	aaa	acg	gaa	ata	4734
Thr	Ile	Arg	Tyr	Glu	Glu	Ser	Ile	Ala	Lys	Leu	Lys	Thr	Glu	Ile	
1565	1570	1575													
gaa	tcc	ggc	ggc	atg	ttg	gtg	ccg	cac	gac	cag	cag	ttg	gtt	cta	4779
Glu	Ser	Gly	Gly	Met	Leu	Val	Pro	His	Asp	Gln	Gln	Leu	Val	Leu	
1580	1585	1590													
aaa	aga	agt	gat	gcc	gct	gag	gct	cag	ggt	gca	aag	gta	tcg	atg	4824
Lys	Arg	Ser	Asp	Ala	Ala	Glu	Ala	Gln	Val	Ala	Lys	Val	Ser	Met	
1595	1600	1605													
atg	gag	cta	ttg	aag	cag	ctg	ctg	ccg	tat	gta	aat	gaa	gat	gtg	4869
Met	Glu	Leu	Leu	Lys	Gln	Leu	Leu	Pro	Tyr	Val	Asn	Glu	Asp	Val	
1610	1615	1620													
ctg	gcc	aaa	aag	ctg	ggt	gat	agg	cgc	gag	ctt	ctg	ctg	tcg	gat	4914
Leu	Ala	Lys	Lys	Leu	Gly	Asp	Arg	Arg	Glu	Leu	Leu	Leu	Ser	Asp	
1625	1630	1635													
ttg	gta	gag	cta	aat	gca	gat	tgg	gta	gcg	cga	cat	gag	cag	gag	4959
Leu	Val	Glu	Leu	Asn	Ala	Asp	Trp	Val	Ala	Arg	His	Glu	Gln	Glu	
1640	1645	1650													
acc	tac	aat	gta	atg	gga	tgc	gga	gat	agt	ttt	gac	aac	tat	aac	5004
Thr	Tyr	Asn	Val	Met	Gly	Cys	Gly	Asp	Ser	Phe	Asp	Asn	Tyr	Asn	
1655	1660	1665													
gat	cat	cat	cgg	ctg	aac	ttg	gat	gaa	aag	caa	ctg	aaa	ctg	caa	5049
Asp	His	His	Arg	Leu	Asn	Leu	Asp	Glu	Lys	Gln	Leu	Lys	Leu	Gln	
1670	1675	1680													
tac	gaa	cga	att	gaa	att	gag	cca	cct	act	tcc	acg	aag	gcc	ata	5094
Tyr	Glu	Arg	Ile	Glu	Ile	Glu	Pro	Pro	Thr	Ser	Thr	Lys	Ala	Ile	
1685	1690	1695													
acc	tca	gcc	ata	tta	cca	gct	ggc	ttc	agt	ttc	gat	cga	caa	ccg	5139
Thr	Ser	Ala	Ile	Leu	Pro	Ala	Gly	Phe	Ser	Phe	Asp	Arg	Gln	Pro	
1700	1705	1710													
gat	cta	gtg	ggc	cat	cca	gga	ccc	agt	ccc	agc	atc	att	ttg	caa	5184
Asp	Leu	Val	Gly	His	Pro	Gly	Pro	Ser	Pro	Ser	Ile	Ile	Leu	Gln	
1715	1720	1725													
gcc	ctc	aca	atg	tcc	aat	gct	aac	gat	ggc	atc	aat	ctg	gag	cga	5229
Ala	Leu	Thr	Met	Ser	Asn	Ala	Asn	Asp	Gly	Ile	Asn	Leu	Glu	Arg	
1730	1735	1740													
ctg	gag	aca	att	gga	gat	tcc	ttt	cta	aag	tat	gcc	att	acc	acc	5274

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Leu	Glu	Thr	Ile	Gly	Asp	Ser	Phe	Leu	Lys	Tyr	Ala	Ile	Thr	Thr	
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tac	ttg	tac	atc	acc	tac	gag	aat	gtg	cac	gag	gga	aaa	cta	agt	5319
Tyr	Leu	Tyr	Ile	Thr	Tyr	Glu	Asn	Val	His	Glu	Gly	Lys	Leu	Ser	
1760	1760					1765					1770				
cac	ctg	cgc	tcc	aag	cag	gtt	gcc	aat	ctc	aat	ctc	tat	cgt	ctg	5364
His	Leu	Arg	Ser	Lys	Gln	Val	Ala	Asn	Leu	Asn	Leu	Tyr	Arg	Leu	
1775	1775					1780					1785				
ggc	aga	cgt	aag	aga	ctg	ggg	gaa	tat	atg	ata	gcc	act	aaa	ttc	5409
Gly	Arg	Arg	Lys	Arg	Leu	Gly	Glu	Tyr	Met	Ile	Ala	Thr	Lys	Phe	
1790	1790					1795					1800				
gag	ccg	cac	gac	aat	tgg	ctg	cca	ccc	tgc	tac	tac	gtg	cca	aag	5454
Glu	Pro	His	Asp	Asn	Trp	Leu	Pro	Pro	Cys	Tyr	Tyr	Val	Pro	Lys	
1805	1805					1810					1815				
gag	cta	gag	aag	gcg	ctc	atc	gag	gcg	aag	atc	ccc	act	cac	cat	5499
Glu	Leu	Glu	Lys	Ala	Leu	Ile	Glu	Ala	Lys	Ile	Pro	Thr	His	His	
1820	1820					1825					1830				
tgg	aag	ctg	gcc	gat	ctg	cta	gac	att	aag	aac	cta	agc	agt	gtg	5544
Trp	Lys	Leu	Ala	Asp	Leu	Leu	Asp	Ile	Lys	Asn	Leu	Ser	Ser	Val	
1835	1835					1840					1845				
caa	atc	tgc	gag	atg	gtt	cgc	gaa	aaa	gcc	gat	gcc	ctg	ggc	ttg	5589
Gln	Ile	Cys	Glu	Met	Val	Arg	Glu	Lys	Ala	Asp	Ala	Leu	Gly	Leu	
1850	1850					1855					1860				
gag	cag	aat	ggg	ggg	gcc	caa	aat	gga	caa	ctt	gac	gac	tcc	aat	5634
Glu	Gln	Asn	Gly	Gly	Ala	Gln	Asn	Gly	Gln	Leu	Asp	Asp	Ser	Asn	
1865	1865					1870					1875				
gat	agc	tgc	aat	gat	ttt	agc	tgt	ttt	att	ccc	tac	aac	ctt	gtt	5679
Asp	Ser	Cys	Asn	Asp	Phe	Ser	Cys	Phe	Ile	Pro	Tyr	Asn	Leu	Val	
1880	1880					1885					1890				
tcg	caa	cac	agc	att	ccg	gat	aag	tct	att	gcc	gat	tgc	gtc	gaa	5724
Ser	Gln	His	Ser	Ile	Pro	Asp	Lys	Ser	Ile	Ala	Asp	Cys	Val	Glu	
1895	1895					1900					1905				
gcc	ctc	att	gga	gcc	tat	ctc	att	gag	tgc	gga	ccc	cga	ggg	gct	5769
Ala	Leu	Ile	Gly	Ala	Tyr	Leu	Ile	Glu	Cys	Gly	Pro	Arg	Gly	Ala	
1910	1910					1915					1920				
tta	ctc	ttt	atg	gcc	tgg	ctg	ggc	gtg	aga	gtg	ctc	cct	atc	aca	5814
Leu	Leu	Phe	Met	Ala	Trp	Leu	Gly	Val	Arg	Val	Leu	Pro	Ile	Thr	
1925	1925					1930					1935				
agg	cag	ttg	gac	ggg	ggg	aac	cag	gag	caa	cga	ata	ccc	ggg	agc	5859
Arg	Gln	Leu	Asp	Gly	Gly	Asn	Gln	Glu	Gln	Arg	Ile	Pro	Gly	Ser	
1940	1940					1945					1950				
aca	aaa	ccg	aat	gcc	gaa	aat	gtg	gtc	acc	gtt	tac	ggg	gca	tgg	5904
Thr	Lys	Pro	Asn	Ala	Glu	Asn	Val	Val	Thr	Val	Tyr	Gly	Ala	Trp	
1955	1955					1960					1965				
ccc	acg	ccg	cgt	agt	cca	ctg	ctg	cac	ttt	gct	cca	aat	gct	acg	5949
Pro	Thr	Pro	Arg	Ser	Pro	Leu	Leu	His	Phe	Ala	Pro	Asn	Ala	Thr	
1970	1970					1975					1980				
gag	gag	ctg	gac	cag	tta	cta	agc	ggc	ttt	gag	gag	ttt	gag	gag	5994
Glu	Glu	Leu	Asp	Gln	Leu	Leu	Ser	Gly	Phe	Glu	Glu	Phe	Glu	Glu	
1985	1985					1990					1995				
agt	ttg	gga	tac	aag	ttc	cgg	gat	cgg	tcg	tac	ctg	ttg	caa	gcc	6039
Ser	Leu	Gly	Tyr	Lys	Phe	Arg	Asp	Arg	Ser	Tyr	Leu	Leu	Gln	Ala	
2000	2000					2005					2010				
atg	aca	cat	gcc	agt	tac	acg	ccc	aat	cga	ttg	acg	gat	tgc	tat	6084
Met	Thr	His	Ala	Ser	Tyr	Thr	Pro	Asn	Arg	Leu	Thr	Asp	Cys	Tyr	
2015	2015					2020					2025				
cag	cgt	ctg	gag	ttc	ctg	ggc	gat	gct	gtt	cta	gat	tac	ctc	att	6129
Gln	Arg	Leu	Glu	Phe	Leu	Gly	Asp	Ala	Val	Leu	Asp	Tyr	Leu	Ile	
2030	2030					2035					2040				
acg	cgg	cat	tta	tac	gaa	gat	ccc	cgc	cag	cat	tct	cca	ggc	gca	6174
Thr	Arg	His	Leu	Tyr	Glu	Asp	Pro	Arg	Gln	His	Ser	Pro	Gly	Ala	
2045	2045					2050					2055				
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Leu	Thr	Asp	Leu	Arg	Ser	Ala	Leu	Val	Asn	Asn	Thr	Ile	Phe	Ala	
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Ser	Leu	Ala	Val	Arg	His	Gly	Phe	His	Lys	Phe	Phe	Arg	His	Leu	
2075						2080					2085				
tcg	ccg	ggc	ctt	aac	gat	gtg	att	gac	cgt	ttt	gtg	cgg	atc	cag	6309
Ser	Pro	Gly	Leu	Asn	Asp	Val	Ile	Asp	Arg	Phe	Val	Arg	Ile	Gln	
2090						2095					2100				
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Gln	Glu	Asn	Gly	His	Cys	Ile	Ser	Glu	Glu	Tyr	Tyr	Leu	Leu	Ser	
2105						2110					2115				
gag	gag	gag	tgc	gat	gac	gcc	gag	gac	gtt	gag	gtg	ccc	aag	gca	6399
Glu	Glu	Glu	Cys	Asp	Asp	Ala	Glu	Asp	Val	Glu	Val	Pro	Lys	Ala	
2120						2125					2130				
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Leu	Gly	Asp	Val	Phe	Glu	Ser	Ile	Ala	Gly	Ala	Ile	Phe	Leu	Asp	
2135						2140					2145				
tca	aac	atg	tcg	ctg	gac	gtg	gtt	tgg	cac	gta	tat	agc	aac	atg	6489
Ser	Asn	Met	Ser	Leu	Asp	Val	Val	Trp	His	Val	Tyr	Ser	Asn	Met	
2150						2155					2160				
atg	agc	ccg	gag	atc	gag	cag	ttc	agc	aac	tca	gtg	cca	aaa	tcg	6534
Met	Ser	Pro	Glu	Ile	Glu	Gln	Phe	Ser	Asn	Ser	Val	Pro	Lys	Ser	
2165						2170					2175				
ccc	att	cgg	gag	ctc	ctc	gag	ctg	gag	ccg	gaa	acc	gcc	aag	ttc	6579
Pro	Ile	Arg	Glu	Leu	Leu	Glu	Leu	Glu	Pro	Glu	Thr	Ala	Lys	Phe	
2180						2185					2190				
ggc	aag	ccc	gag	aag	ctg	gcg	gat	ggg	cga	cgg	gtg	cgc	gtt	acc	6624
Gly	Lys	Pro	Glu	Lys	Leu	Ala	Asp	Gly	Arg	Arg	Val	Arg	Val	Thr	
2195						2200					2205				
gtg	gat	gtc	ttc	tgc	aaa	gga	acc	ttc	cgt	ggc	atc	gga	cgc	aac	6669
Val	Asp	Val	Phe	Cys	Lys	Gly	Thr	Phe	Arg	Gly	Ile	Gly	Arg	Asn	
2210						2215					2220				
tat	cgc	att	gcc	aag	tgc	acg	gcg	gcc	aaa	tgc	gca	ttg	cgc	caa	6714
Tyr	Arg	Ile	Ala	Lys	Cys	Thr	Ala	Ala	Lys	Cys	Ala	Leu	Arg	Gln	
2225						2230					2235				
ctc	aaa	aag	cag	ggc	ttg	ata	gcc	aaa	aaa	gac	taa				6750
Leu	Lys	Lys	Gln	Gly	Leu	Ile	Ala	Lys	Lys	Asp					
2240						2245									

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 Pro Arg Asp Phe Gln Val Glu Leu Leu Ala Thr Ala Tyr Glu Arg Asn
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 Thr Ile Ile Cys Leu Gly His Arg Ser Ser Lys Glu Phe Ile Ala Leu
 35 40 45
 Lys Leu Leu Gln Glu Leu Ser Arg Arg Ala Arg Arg His Gly Arg Val
 50 55 60
 Ser Val Tyr Leu Ser Cys Glu Val Gly Thr Ser Thr Glu Pro Cys Ser
 65 70 75 80
 Ile Tyr Thr Met Leu Thr His Leu Thr Asp Leu Arg Val Trp Gln Glu
 85 90 95

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Gln Pro Asp Met Gln Ile Pro Phe Asp His Cys Trp Thr Asp Tyr His
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 Val Ser Ile Leu Arg Pro Glu Gly Phe Leu Tyr Leu Leu Glu Thr Arg
 115 120 125
 Glu Leu Leu Leu Ser Ser Val Glu Leu Ile Val Leu Glu Asp Cys His
 130 135 140
 Asp Ser Ala Val Tyr Gln Arg Ile Arg Pro Leu Phe Glu Asn His Ile
 145 150 155 160
 Met Pro Ala Pro Pro Ala Asp Arg Pro Arg Ile Leu Gly Leu Ala Gly
 165 170 175
 Pro Leu His Ser Ala Gly Cys Glu Leu Gln Gln Leu Ser Ala Met Leu
 180 185 190
 Ala Thr Leu Glu Gln Ser Val Leu Cys Gln Ile Glu Thr Ala Ser Asp
 195 200 205
 Ile Val Thr Val Leu Arg Tyr Cys Ser Arg Pro His Glu Tyr Ile Val
 210 215 220
 Gln Cys Ala Pro Phe Glu Met Asp Glu Leu Ser Leu Val Leu Ala Asp
 225 230 235 240
 Val Leu Asn Thr His Lys Ser Phe Leu Leu Asp His Arg Tyr Asp Pro
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 Tyr Glu Ile Tyr Gly Thr Asp Gln Phe Met Asp Glu Leu Lys Asp Ile
 260 265 270
 Pro Asp Pro Lys Val Asp Pro Leu Asn Val Ile Asn Ser Leu Leu Val
 275 280 285
 Val Leu His Glu Met Gly Pro Trp Cys Thr Gln Arg Ala Ala His His
 290 295 300
 Phe Tyr Gln Cys Asn Glu Lys Leu Lys Val Lys Thr Pro His Glu Arg
 305 310 315 320
 His Tyr Leu Leu Tyr Cys Leu Val Ser Thr Ala Leu Ile Gln Leu Tyr
 325 330 335
 Ser Leu Cys Glu His Ala Phe His Arg His Leu Gly Ser Gly Ser Asp
 340 345 350
 Ser Arg Gln Thr Ile Glu Arg Tyr Ser Ser Pro Lys Val Arg Arg Leu
 355 360 365
 Leu Gln Thr Leu Arg Cys Phe Lys Pro Glu Glu Val His Thr Gln Ala
 370 375 380
 Asp Gly Leu Arg Arg Met Arg His Gln Val Asp Gln Ala Asp Phe Asn
 385 390 395 400
 Arg Leu Ser His Thr Leu Glu Ser Lys Cys Arg Met Val Asp Gln Met
 405 410 415
 Asp Gln Pro Pro Thr Glu Thr Arg Ala Leu Val Ala Thr Leu Glu Gln
 420 425 430

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Ile Leu His Thr Thr Glu Asp Arg Gln Thr Asn Arg Ser Ala Ala Arg
435 440 445

Val Thr Pro Thr Pro Thr Pro Ala His Ala Lys Pro Lys Pro Ser Ser
450 455 460

Gly Ala Asn Thr Ala Gln Pro Arg Thr Arg Arg Val Tyr Thr Arg
465 470 475 480

Arg His His Arg Asp His Asn Asp Gly Ser Asp Thr Leu Cys Ala Leu
485 490 495

Ile Tyr Cys Asn Gln Asn His Thr Ala Arg Val Leu Phe Glu Leu Leu
500 505 510

Ala Glu Ile Ser Arg Arg Asp Pro Asp Leu Lys Phe Leu Arg Cys Gln
515 520 525

Tyr Thr Thr Asp Arg Val Ala Asp Pro Thr Thr Glu Pro Lys Glu Ala
530 535 540

Glu Leu Glu His Arg Arg Gln Glu Glu Val Leu Lys Arg Phe Arg Met
545 550 555 560

His Asp Cys Asn Val Leu Ile Gly Thr Ser Val Leu Glu Glu Gly Ile
565 570 575

Asp Val Pro Lys Cys Asn Leu Val Val Arg Trp Asp Pro Pro Thr Thr
580 585 590

Tyr Arg Ser Tyr Val Gln Cys Lys Gly Arg Ala Arg Ala Ala Pro Ala
595 600 605

Tyr His Val Ile Leu Val Ala Pro Ser Tyr Lys Ser Pro Thr Val Gly
610 615 620

Ser Val Gln Leu Thr Asp Arg Ser His Arg Tyr Ile Cys Ala Thr Gly
625 630 635 640

Asp Thr Thr Glu Ala Asp Ser Asp Ser Asp Ser Ala Met Pro Asn
645 650 655

Ser Ser Gly Ser Asp Pro Tyr Thr Phe Gly Thr Ala Arg Gly Thr Val
660 665 670

Lys Ile Leu Asn Pro Glu Val Phe Ser Lys Gln Pro Pro Thr Ala Cys
675 680 685

Asp Ile Lys Leu Gln Glu Ile Gln Asp Glu Leu Pro Ala Ala Ala Gln
690 695 700

Leu Asp Thr Ser Asn Ser Ser Asp Glu Ala Val Ser Met Ser Asn Thr
705 710 715 720

Ser Pro Ser Glu Ser Thr Thr Glu Gln Lys Ser Arg Arg Phe Gln Cys
725 730 735

Glu Leu Ser Ser Leu Thr Glu Pro Glu Asp Thr Ser Asp Thr Thr Ala
740 745 750

Glu Ile Asp Thr Ala His Ser Leu Ala Ser Thr Thr Lys Asp Leu Val
755 760 765

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His Gln Met Ala Gln Tyr Arg Glu Ile Glu Gln Met Leu Leu Ser Lys
 770 775 780
 Cys Ala Asn Thr Glu Pro Pro Glu Gln Glu Gln Ser Glu Ala Glu Arg
 785 790 795 800
 Phe Ser Ala Cys Leu Ala Ala Tyr Arg Pro Lys Pro His Leu Leu Thr
 805 810 815
 Gly Ala Ser Val Asp Leu Gly Ser Ala Ile Ala Leu Val Asn Lys Tyr
 820 825 830
 Cys Ala Arg Leu Pro Ser Asp Thr Phe Thr Lys Leu Thr Ala Leu Trp
 835 840 845
 Arg Cys Thr Arg Asn Glu Arg Ala Gly Val Thr Leu Phe Gln Tyr Thr
 850 855 860
 Leu Arg Leu Pro Ile Asn Ser Pro Leu Lys His Asp Ile Val Gly Leu
 865 870 875 880
 Pro Met Pro Thr Gln Thr Leu Ala Arg Arg Leu Ala Ala Leu Gln Ala
 885 890 895
 Cys Val Glu Leu His Arg Ile Gly Glu Leu Asp Asp Gln Leu Gln Pro
 900 905 910
 Ile Gly Lys Glu Gly Phe Arg Ala Leu Glu Pro Asp Trp Glu Cys Phe
 915 920 925
 Glu Leu Glu Pro Glu Asp Glu Gln Ile Val Gln Leu Ser Asp Glu Pro
 930 935 940
 Arg Pro Gly Thr Thr Lys Arg Arg Gln Tyr Tyr Tyr Lys Arg Ile Ala
 945 950 955 960
 Ser Glu Phe Cys Asp Cys Arg Pro Val Ala Gly Ala Pro Cys Tyr Leu
 965 970 975
 Tyr Phe Ile Gln Leu Thr Leu Gln Cys Pro Ile Pro Glu Glu Gln Asn
 980 985 990
 Thr Arg Gly Arg Lys Ile Tyr Pro Pro Glu Asp Ala Gln Gln Gly Phe
 995 1000 1005
 Gly Ile Leu Thr Thr Lys Arg Ile Pro Lys Leu Ser Ala Phe Ser
 1010 1015 1020
 Ile Phe Thr Arg Ser Gly Glu Val Lys Val Ser Leu Glu Leu Ala
 1025 1030 1035
 Lys Glu Arg Val Ile Leu Thr Ser Glu Gln Ile Val Cys Ile Asn
 1040 1045 1050
 Gly Phe Leu Asn Tyr Thr Phe Thr Asn Val Leu Arg Leu Gln Lys
 1055 1060 1065
 Phe Leu Met Leu Phe Asp Pro Asp Ser Thr Glu Asn Cys Val Phe
 1070 1075 1080
 Ile Val Pro Thr Val Lys Ala Pro Ala Gly Gly Lys His Ile Asp
 1085 1090 1095

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Trp	Gln	Phe	Leu	Glu	Leu	Ile	Gln	Ala	Asn	Gly	Asn	Thr	Met	Pro
1100						1105					1110			
Arg	Ala	Val	Pro	Asp	Glu	Glu	Arg	Gln	Ala	Gln	Pro	Phe	Asp	Pro
1115						1120					1125			
Gln	Arg	Phe	Gln	Asp	Ala	Val	Val	Met	Pro	Trp	Tyr	Arg	Asn	Gln
1130						1135					1140			
Asp	Gln	Pro	Gln	Tyr	Phe	Tyr	Val	Ala	Glu	Ile	Cys	Pro	His	Leu
1145						1150					1155			
Ser	Pro	Leu	Ser	Cys	Phe	Pro	Gly	Asp	Asn	Tyr	Arg	Thr	Phe	Lys
1160						1165					1170			
His	Tyr	Tyr	Leu	Val	Lys	Tyr	Gly	Leu	Thr	Ile	Gln	Asn	Thr	Ser
1175						1180					1185			
Gln	Pro	Leu	Leu	Asp	Val	Asp	His	Thr	Ser	Ala	Arg	Leu	Asn	Phe
1190						1195					1200			
Leu	Thr	Pro	Arg	Tyr	Val	Asn	Arg	Lys	Gly	Val	Ala	Leu	Pro	Thr
1205						1210					1215			
Ser	Ser	Glu	Glu	Thr	Lys	Arg	Ala	Lys	Arg	Glu	Asn	Leu	Glu	Gln
1220						1225					1230			
Lys	Gln	Ile	Leu	Val	Pro	Glu	Leu	Cys	Thr	Val	His	Pro	Phe	Pro
1235						1240					1245			
Ala	Ser	Leu	Trp	Arg	Thr	Ala	Val	Cys	Leu	Pro	Cys	Ile	Leu	Tyr
1250						1255					1260			
Arg	Ile	Asn	Gly	Leu	Leu	Leu	Ala	Asp	Asp	Ile	Arg	Lys	Gln	Val
1265						1270					1275			
Ser	Ala	Asp	Leu	Gly	Leu	Gly	Arg	Gln	Gln	Ile	Glu	Asp	Glu	Asp
1280						1285					1290			
Phe	Glu	Trp	Pro	Met	Leu	Asp	Phe	Gly	Trp	Ser	Leu	Ser	Glu	Val
1295						1300					1305			
Leu	Lys	Lys	Ser	Arg	Glu	Ser	Lys	Gln	Lys	Glu	Ser	Leu	Lys	Asp
1310						1315					1320			
Asp	Thr	Ile	Asn	Gly	Lys	Asp	Leu	Ala	Asp	Val	Glu	Lys	Lys	Pro
1325						1330					1335			
Thr	Ser	Glu	Glu	Thr	Gln	Leu	Asp	Lys	Asp	Ser	Lys	Asp	Asp	Lys
1340						1345					1350			
Val	Glu	Lys	Ser	Ala	Ile	Glu	Leu	Ile	Ile	Glu	Gly	Glu	Glu	Lys
1355						1360					1365			
Leu	Gln	Glu	Ala	Asp	Asp	Phe	Ile	Glu	Ile	Gly	Thr	Trp	Ser	Asn
1370						1375					1380			
Asp	Met	Ala	Asp	Asp	Ile	Ala	Ser	Phe	Asn	Gln	Glu	Asp	Asp	Asp
1385						1390					1395			
Glu	Asp	Asp	Ala	Phe	His	Leu	Pro	Val	Leu	Pro	Ala	Asn	Val	Lys
1400						1405					1410			

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Phe	Cys	Asp	Gln	Gln	Thr	Arg	Tyr	Gly	Ser	Pro	Thr	Phe	Trp	Asp
	1415					1420					1425			
Val	Ser	Asn	Gly	Glu	Ser	Gly	Phe	Lys	Gly	Pro	Lys	Ser	Ser	Gln
	1430					1435					1440			
Asn	Lys	Gln	Gly	Gly	Lys	Gly	Lys	Ala	Lys	Gly	Pro	Ala	Lys	Pro
	1445					1450					1455			
Thr	Phe	Asn	Tyr	Tyr	Asp	Ser	Asp	Asn	Ser	Leu	Gly	Ser	Ser	Tyr
	1460					1465					1470			
Asp	Asp	Asp	Asp	Asn	Ala	Gly	Pro	Leu	Asn	Tyr	Met	His	His	Asn
	1475					1480					1485			
Tyr	Ser	Ser	Asp	Asp	Asp	Asp	Val	Ala	Asp	Asp	Ile	Asp	Ala	Gly
	1490					1495					1500			
Arg	Ile	Ala	Phe	Thr	Ser	Lys	Asn	Glu	Ala	Glu	Thr	Ile	Glu	Thr
	1505					1510					1515			
Ala	Gln	Glu	Val	Glu	Lys	Arg	Gln	Lys	Gln	Leu	Ser	Ile	Ile	Gln
	1520					1525					1530			
Ala	Thr	Asn	Ala	Asn	Glu	Arg	Gln	Tyr	Gln	Gln	Thr	Lys	Asn	Leu
	1535					1540					1545			
Leu	Ile	Gly	Phe	Asn	Phe	Lys	His	Glu	Asp	Gln	Lys	Glu	Pro	Ala
	1550					1555					1560			
Thr	Ile	Arg	Tyr	Glu	Glu	Ser	Ile	Ala	Lys	Leu	Lys	Thr	Glu	Ile
	1565					1570					1575			
Glu	Ser	Gly	Gly	Met	Leu	Val	Pro	His	Asp	Gln	Gln	Leu	Val	Leu
	1580					1585					1590			
Lys	Arg	Ser	Asp	Ala	Ala	Glu	Ala	Gln	Val	Ala	Lys	Val	Ser	Met
	1595					1600					1605			
Met	Glu	Leu	Leu	Lys	Gln	Leu	Leu	Pro	Tyr	Val	Asn	Glu	Asp	Val
	1610					1615					1620			
Leu	Ala	Lys	Lys	Leu	Gly	Asp	Arg	Arg	Glu	Leu	Leu	Leu	Ser	Asp
	1625					1630					1635			
Leu	Val	Glu	Leu	Asn	Ala	Asp	Trp	Val	Ala	Arg	His	Glu	Gln	Glu
	1640					1645					1650			
Thr	Tyr	Asn	Val	Met	Gly	Cys	Gly	Asp	Ser	Phe	Asp	Asn	Tyr	Asn
	1655					1660					1665			
Asp	His	His	Arg	Leu	Asn	Leu	Asp	Glu	Lys	Gln	Leu	Lys	Leu	Gln
	1670					1675					1680			
Tyr	Glu	Arg	Ile	Glu	Ile	Glu	Pro	Pro	Thr	Ser	Thr	Lys	Ala	Ile
	1685					1690					1695			
Thr	Ser	Ala	Ile	Leu	Pro	Ala	Gly	Phe	Ser	Phe	Asp	Arg	Gln	Pro
	1700					1705					1710			
Asp	Leu	Val	Gly	His	Pro	Gly	Pro	Ser	Pro	Ser	Ile	Ile	Leu	Gln
	1715					1720					1725			

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Ala	Leu	Thr	Met	Ser	Asn	Ala	Asn	Asp	Gly	Ile	Asn	Leu	Glu	Arg
1730						1735					1740			
Leu	Glu	Thr	Ile	Gly	Asp	Ser	Phe	Leu	Lys	Tyr	Ala	Ile	Thr	Thr
1745						1750					1755			
Tyr	Leu	Tyr	Ile	Thr	Tyr	Glu	Asn	Val	His	Glu	Gly	Lys	Leu	Ser
1760						1765					1770			
His	Leu	Arg	Ser	Lys	Gln	Val	Ala	Asn	Leu	Asn	Leu	Tyr	Arg	Leu
1775						1780					1785			
Gly	Arg	Arg	Lys	Arg	Leu	Gly	Glu	Tyr	Met	Ile	Ala	Thr	Lys	Phe
1790						1795					1800			
Glu	Pro	His	Asp	Asn	Trp	Leu	Pro	Pro	Cys	Tyr	Tyr	Val	Pro	Lys
1805						1810					1815			
Glu	Leu	Glu	Lys	Ala	Leu	Ile	Glu	Ala	Lys	Ile	Pro	Thr	His	His
1820						1825					1830			
Trp	Lys	Leu	Ala	Asp	Leu	Leu	Asp	Ile	Lys	Asn	Leu	Ser	Ser	Val
1835						1840					1845			
Gln	Ile	Cys	Glu	Met	Val	Arg	Glu	Lys	Ala	Asp	Ala	Leu	Gly	Leu
1850						1855					1860			
Glu	Gln	Asn	Gly	Gly	Ala	Gln	Asn	Gly	Gln	Leu	Asp	Asp	Ser	Asn
1865						1870					1875			
Asp	Ser	Cys	Asn	Asp	Phe	Ser	Cys	Phe	Ile	Pro	Tyr	Asn	Leu	Val
1880						1885					1890			
Ser	Gln	His	Ser	Ile	Pro	Asp	Lys	Ser	Ile	Ala	Asp	Cys	Val	Glu
1895						1900					1905			
Ala	Leu	Ile	Gly	Ala	Tyr	Leu	Ile	Glu	Cys	Gly	Pro	Arg	Gly	Ala
1910						1915					1920			
Leu	Leu	Phe	Met	Ala	Trp	Leu	Gly	Val	Arg	Val	Leu	Pro	Ile	Thr
1925						1930					1935			
Arg	Gln	Leu	Asp	Gly	Gly	Asn	Gln	Glu	Gln	Arg	Ile	Pro	Gly	Ser
1940						1945					1950			
Thr	Lys	Pro	Asn	Ala	Glu	Asn	Val	Val	Thr	Val	Tyr	Gly	Ala	Trp
1955						1960					1965			
Pro	Thr	Pro	Arg	Ser	Pro	Leu	Leu	His	Phe	Ala	Pro	Asn	Ala	Thr
1970						1975					1980			
Glu	Glu	Leu	Asp	Gln	Leu	Leu	Ser	Gly	Phe	Glu	Glu	Phe	Glu	Glu
1985						1990					1995			
Ser	Leu	Gly	Tyr	Lys	Phe	Arg	Asp	Arg	Ser	Tyr	Leu	Leu	Gln	Ala
2000						2005					2010			
Met	Thr	His	Ala	Ser	Tyr	Thr	Pro	Asn	Arg	Leu	Thr	Asp	Cys	Tyr
2015						2020					2025			
Gln	Arg	Leu	Glu	Phe	Leu	Gly	Asp	Ala	Val	Leu	Asp	Tyr	Leu	Ile
2030						2035					2040			

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Thr Arg His Leu Tyr Glu Asp Pro Arg Gln His Ser Pro Gly Ala
2045 2050 2055

Leu Thr Asp Leu Arg Ser Ala Leu Val Asn Asn Thr Ile Phe Ala
2060 2065 2070

Ser Leu Ala Val Arg His Gly Phe His Lys Phe Phe Arg His Leu
2075 2080 2085

Ser Pro Gly Leu Asn Asp Val Ile Asp Arg Phe Val Arg Ile Gln
2090 2095 2100

Gln Glu Asn Gly His Cys Ile Ser Glu Glu Tyr Tyr Leu Leu Ser
2105 2110 2115

Glu Glu Glu Cys Asp Asp Ala Glu Asp Val Glu Val Pro Lys Ala
2120 2125 2130

Leu Gly Asp Val Phe Glu Ser Ile Ala Gly Ala Ile Phe Leu Asp
2135 2140 2145

Ser Asn Met Ser Leu Asp Val Val Trp His Val Tyr Ser Asn Met
2150 2155 2160

Met Ser Pro Glu Ile Glu Gln Phe Ser Asn Ser Val Pro Lys Ser
2165 2170 2175

Pro Ile Arg Glu Leu Leu Glu Leu Glu Pro Glu Thr Ala Lys Phe
2180 2185 2190

Gly Lys Pro Glu Lys Leu Ala Asp Gly Arg Arg Val Arg Val Thr
2195 2200 2205

Val Asp Val Phe Cys Lys Gly Thr Phe Arg Gly Ile Gly Arg Asn
2210 2215 2220

Tyr Arg Ile Ala Lys Cys Thr Ala Ala Lys Cys Ala Leu Arg Gln
2225 2230 2235

Leu Lys Lys Gln Gly Leu Ile Ala Lys Lys Asp
2240 2245

<210> 5
<211> 1145
<212> PRT
<213> Drosophila melanogaster

<400> 5
Met Gly Lys Lys Asp Lys Asn Lys Lys Gly Gly Gln Asp Ser Ala Ala
1 5 10 15

Ala Pro Gln Pro Gln Gln Gln Gln Lys Gln Gln Gln Gln Arg Gln Gln
20 25 30

Gln Pro Gln Gln Leu Gln Gln Pro Gln Gln Leu Gln Gln Pro Gln Gln
35 40 45

Leu Gln Gln Pro Gln Gln Gln Gln Gln Gln Gln Pro His Gln Gln Gln
50 55 60

Gln Gln Ser Ser Arg Gln Gln Pro Ser Thr Ser Ser Gly Gly Ser Arg
65 70 75 80

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Ala Ser Gly Phe Gln Gln Gly Gly Gln Gln Gln Lys Ser Gln Asp Ala
 85 90 95
 Glu Gly Trp Thr Ala Gln Lys Lys Gln Gly Lys Gln Gln Val Gln Gly
 100 105 110
 Trp Thr Lys Gln Gly Gln Gln Gly Gly His Gln Gln Gly Arg Gln Gly
 115 120 125
 Gln Asp Gly Gly Tyr Gln Gln Arg Pro Pro Gly Gln Gln Gln Gly Gly
 130 135 140
 His Gln Gln Gly Arg Gln Gly Gln Glu Gly Gly Tyr Gln Gln Arg Pro
 145 150 155 160
 Pro Gly Gln Gln Gln Gly Gly His Gln Gln Gly Arg Gln Gly Gln Glu
 165 170 175
 Gly Gly Tyr Gln Gln Arg Pro Ser Gly Gln Gln Gln Gly Gly His Gln
 180 185 190
 Gln Gly Arg Gln Gly Gln Glu Gly Gly Tyr Gln Gln Arg Pro Pro Gly
 195 200 205
 Gln Gln Gln Gly Gly His Gln Gln Gly Arg Gln Gly Gln Glu Gly Gly
 210 215 220
 Tyr Gln Gln Arg Pro Ser Gly Gln Gln Gln Gly Gly His Gln Gln Gly
 225 230 235 240
 Arg Gln Gly Gln Glu Gly Gly Tyr Gln Gln Arg Pro Ser Gly Gln Gln
 245 250 255
 Gln Gly Gly His Gln Gln Gly Arg Gln Gly Gln Glu Gly Gly Tyr Gln
 260 265 270
 Gln Arg Pro Ser Gly Gln Gln Gln Gly Gly His Gln Gln Gly Arg Gln
 275 280 285
 Gly Gln Glu Gly Gly Tyr Gln Gln Arg Pro Pro Gly Gln Gln Pro Asn
 290 295 300
 Gln Thr Gln Ser Gln Gly Gln Tyr Gln Ser Arg Gly Pro Pro Gln Gln
 305 310 315 320
 Gln Gln Ala Ala Pro Leu Pro Leu Pro Pro Gln Pro Ala Gly Ser Ile
 325 330 335
 Lys Arg Gly Thr Ile Gly Lys Pro Gly Gln Val Gly Ile Asn Tyr Leu
 340 345 350
 Asp Leu Asp Leu Ser Lys Met Pro Ser Val Ala Tyr His Tyr Asp Val
 355 360 365
 Lys Ile Met Pro Glu Arg Pro Lys Lys Phe Tyr Arg Gln Ala Phe Glu
 370 375 380
 Gln Phe Arg Val Asp Gln Leu Gly Gly Ala Val Leu Ala Tyr Asp Gly
 385 390 395 400
 Lys Ala Ser Cys Tyr Ser Val Asp Lys Leu Pro Leu Asn Ser Gln Asn
 405 410 415

GNCA-P03-007SequenceListing.txt

Pro Glu Val Thr Val Thr Asp Arg Asn Gly Arg Thr Leu Arg Tyr Thr
 420 425 430
 Ile Glu Ile Lys Glu Thr Gly Asp Ser Thr Ile Asp Leu Lys Ser Leu
 435 440 445
 Thr Thr Tyr Met Asn Asp Arg Ile Phe Asp Lys Pro Met Arg Ala Met
 450 455 460
 Gln Cys Val Glu Val Val Leu Ala Ser Pro Cys His Asn Lys Ala Ile
 465 470 475 480
 Arg Val Gly Arg Ser Phe Phe Lys Met Ser Asp Pro Asn Asn Arg His
 485 490 495
 Glu Leu Asp Asp Gly Tyr Glu Ala Leu Val Gly Leu Tyr Gln Ala Phe
 500 505 510
 Met Leu Gly Asp Arg Pro Phe Leu Asn Val Asp Ile Ser His Lys Ser
 515 520 525
 Phe Pro Ile Ser Met Pro Met Ile Glu Tyr Leu Glu Arg Phe Ser Leu
 530 535 540
 Lys Ala Lys Ile Asn Asn Thr Thr Asn Leu Asp Tyr Ser Arg Arg Phe
 545 550 555 560
 Leu Glu Pro Phe Leu Arg Gly Ile Asn Val Val Tyr Thr Pro Pro Gln
 565 570 575
 Ser Phe Gln Ser Ala Pro Arg Val Tyr Arg Val Asn Gly Leu Ser Arg
 580 585 590
 Ala Pro Ala Ser Ser Glu Thr Phe Glu His Asp Gly Lys Lys Val Thr
 595 600 605
 Ile Ala Ser Tyr Phe His Ser Arg Asn Tyr Pro Leu Lys Phe Pro Gln
 610 615 620
 Leu His Cys Leu Asn Val Gly Ser Ser Ile Lys Ser Ile Leu Leu Pro
 625 630 635 640
 Ile Glu Leu Cys Ser Ile Glu Glu Gly Gln Ala Leu Asn Arg Lys Asp
 645 650 655
 Gly Ala Thr Gln Val Ala Asn Met Ile Lys Tyr Ala Ala Thr Ser Thr
 660 665 670
 Asn Val Arg Lys Arg Lys Ile Met Asn Leu Leu Gln Tyr Phe Gln His
 675 680 685
 Asn Leu Asp Pro Thr Ile Ser Arg Phe Gly Ile Arg Ile Ala Asn Asp
 690 695 700
 Phe Ile Val Val Ser Thr Arg Val Leu Ser Pro Pro Gln Val Glu Tyr
 705 710 715 720
 His Ser Lys Arg Phe Thr Met Val Lys Asn Gly Ser Trp Arg Met Asp
 725 730 735
 Gly Met Lys Phe Leu Glu Pro Lys Pro Lys Ala His Lys Cys Ala Val
 740 745 750

GNCA-P03-007SequenceListing.txt

Leu Tyr Cys Asp Pro Arg Ser Gly Arg Lys Met Asn Tyr Thr Gln Leu
 755 760 765
 Asn Asp Phe Gly Asn Leu Ile Ile Ser Gln Gly Lys Ala Val Asn Ile
 770 775 780
 Ser Leu Asp Ser Asp Val Thr Tyr Arg Pro Phe Thr Asp Asp Glu Arg
 785 790 795 800
 Ser Leu Asp Thr Ile Phe Ala Asp Leu Lys Arg Ser Gln His Asp Leu
 805 810 815
 Ala Ile Val Ile Ile Pro Gln Phe Arg Ile Ser Tyr Asp Thr Ile Lys
 820 825 830
 Gln Lys Ala Glu Leu Gln His Gly Ile Leu Thr Gln Cys Ile Lys Gln
 835 840 845
 Phe Thr Val Glu Arg Lys Cys Asn Asn Gln Thr Ile Gly Asn Ile Leu
 850 855 860
 Leu Lys Ile Asn Ser Lys Leu Asn Gly Ile Asn His Lys Ile Lys Asp
 865 870 875 880
 Asp Pro Arg Leu Pro Met Met Lys Asn Thr Met Tyr Ile Gly Ala Asp
 885 890 895
 Val Thr His Pro Ser Pro Asp Gln Arg Glu Ile Pro Ser Val Val Gly
 900 905 910
 Val Ala Ala Ser His Asp Pro Tyr Gly Ala Ser Tyr Asn Met Gln Tyr
 915 920 925
 Arg Leu Gln Arg Gly Ala Leu Glu Glu Ile Glu Asp Met Phe Ser Ile
 930 935 940
 Thr Leu Glu His Leu Arg Val Tyr Lys Glu Tyr Arg Asn Ala Tyr Pro
 945 950 955 960
 Asp His Ile Ile Tyr Tyr Arg Asp Gly Val Ser Asp Gly Gln Phe Pro
 965 970 975
 Lys Ile Lys Asn Glu Glu Leu Arg Cys Ile Lys Gln Ala Cys Asp Lys
 980 985 990
 Val Gly Cys Lys Pro Lys Ile Cys Cys Val Ile Val Val Lys Arg His
 995 1000 1005
 His Thr Arg Phe Phe Pro Ser Gly Asp Val Thr Thr Ser Asn Lys
 1010 1015 1020
 Phe Asn Asn Val Asp Pro Gly Thr Val Val Asp Arg Thr Ile Val
 1025 1030 1035
 His Pro Asn Glu Met Gln Phe Phe Met Val Ser Gly Gln Ala Ile
 1040 1045 1050
 Gln Gly Thr Ala Lys Pro Thr Arg Tyr Asn Val Ile Glu Asn Thr
 1055 1060 1065
 Gly Asn Leu Asp Ile Asp Leu Leu Gln Gln Leu Thr Tyr Asn Leu
 1070 1075 1080

GNCA-P03-007SequenceListing.txt

Cys His Met Phe Pro Arg Cys Asn Arg Ser Val Ser Tyr Pro Ala
 1085 1090 1095
 Pro Ala Tyr Leu Ala His Leu Val Ala Ala Arg Gly Arg Val Tyr
 1100 1105 1110
 Leu Thr Gly Thr Asn Arg Phe Leu Asp Leu Lys Lys Glu Tyr Ala
 1115 1120 1125
 Lys Arg Thr Ile Val Pro Glu Phe Met Lys Lys Asn Pro Met Tyr
 1130 1135 1140
 Phe Val
 1145

<210> 6
 <211> 22
 <212> RNA
 <213> Photinus pyralis

<400> 6
 ucgaaguacu cagcguaagu ga 22

<210> 7
 <211> 22
 <212> RNA
 <213> Photinus pyralis

<400> 7
 uaaagcuuca ugagucgcau uc 22

<210> 8
 <211> 83
 <212> RNA
 <213> Photinus pyralis

<400> 8
 caucgacuga aaucccuccc ugguaauccg uuugggcucu gcccgcuau gggauaaaug 60
 guuaucaagg auuuuagucg auc 83

<210> 9
 <211> 62
 <212> RNA
 <213> Photinus pyralis

<400> 9
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 ug 62

<210> 10
 <211> 44
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> primer

<400> 10
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GNCA-P03-007SequenceListing.txt

<210> 11
 <211> 44
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> primer

 <400> 11
 taatacgact cactataggg cagatatttt ctaccaccc accc 44

 <210> 12
 <211> 44
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> primer

 <400> 12
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 <210> 13
 <211> 44
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> primer

 <400> 13
 taatacgact cactataggg aaatcattgc tttcctgata atgc 44

 <210> 14
 <211> 44
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> primer

 <400> 14
 taatacgact cactataggg tagatttccg cagccccagt gtgc 44

 <210> 15
 <211> 44
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> primer

 <400> 15
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 <210> 16
 <211> 45
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> primer

GNCA-P03-007SequenceListing.txt

<400> 16	
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<210> 17	
<211> 44	
<212> DNA	
<213> Artificial Sequence	
<220>	
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taatacgact cactataggg tcacatgttt tggctaagac ctat	44